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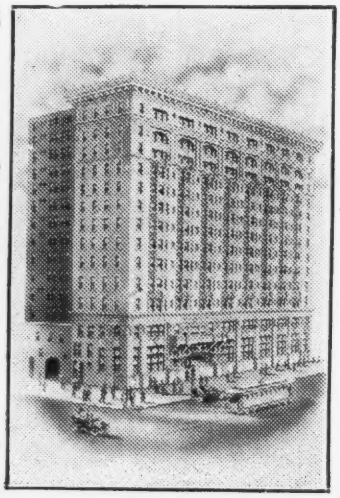

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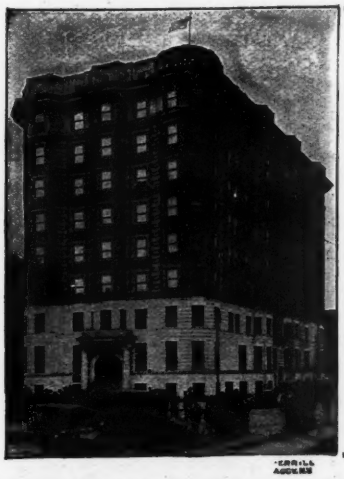

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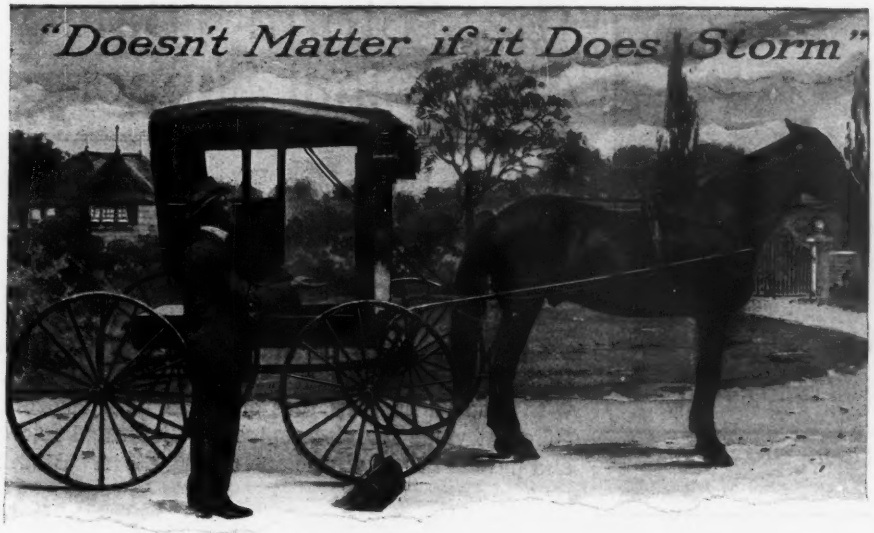

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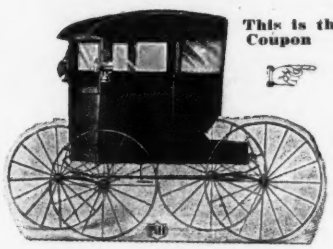

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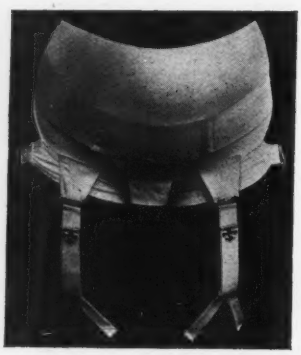

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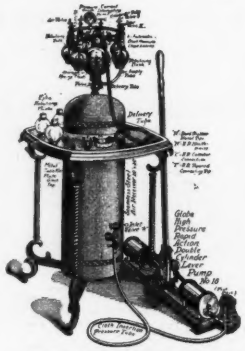

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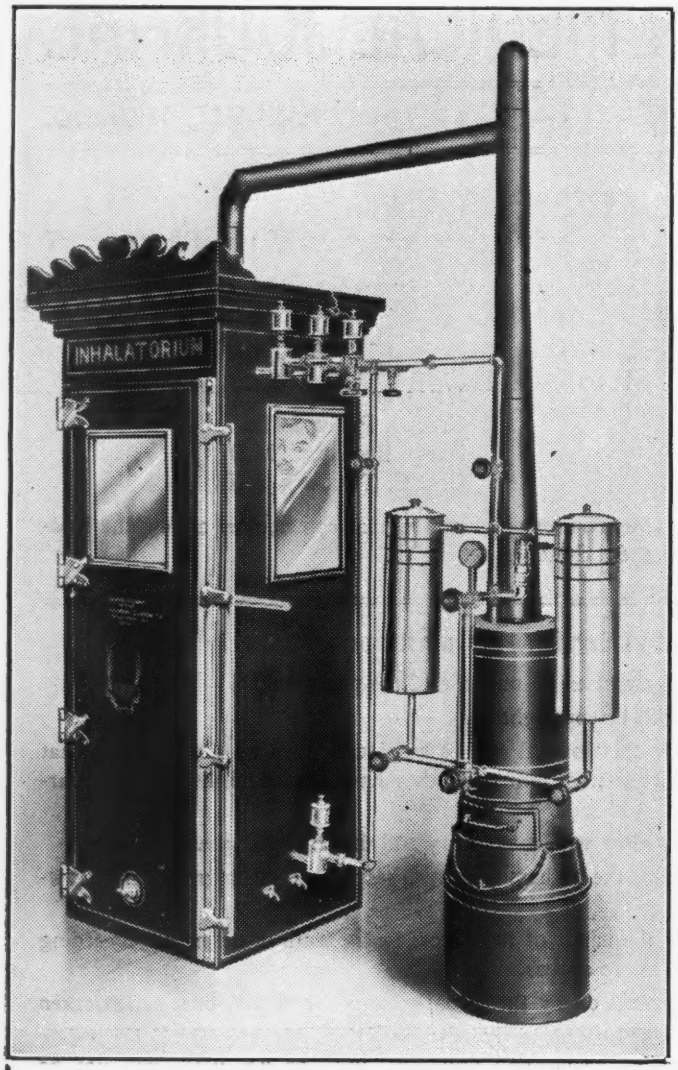

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PROGRESSIVE PERNICIOUS ANEMIA WITH REPORT OF CASES

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Since Addison's classical description of this disease in 1855, all diseases of similar type of unknown origin have been classified as pernicious anemia. Recent study has demonstrated the fact that many cases to which this classification has been applied are due to certain causes of gastro-intestinal origin, which would seemingly take them out of this class. This is especially true in those cases where diarrhoea has been an associate symptom. While we do find cases occasionally in which no cause can be found, yet in this day when the etiology of so many diseases can be demonstrated because of the greatly improved facilities for research, the writer feels that the term idiopathic is an unfortunate one and should, in the light of present study, never be used in connection with any pathological change, and would respectfully suggest that where a disease presenting all of the classical symptoms and blood findings characteristic of pernicious anemia that it should be so diagnosed; for a while this word was in common use and possibly necessary at the time of Addison's description, but it would seem illogical and unscientific at the present day; this is especially true in those cases in which the gastro-intestinal factors have proven capable of producing a disease practically the same; while it has long been known that the Bothriocephalus and Uncinaria will produce an anemia simulating this type, it has been proven beyond a doubt by Herter and others that there exists in the large intestines anaerobic bacteria which produce a substance of marked hemolytic power, which penetrates the intestinal wall and enters the portal circulation, there creating marked destruction of the blood. This is especially true since Hunter's investigations show that the hemolysis in this disease takes place largely in the portal circulation. It is also of historical value that in Beimer's early writings in which the name progressive pernicious anemia appears for the first time, and whose classical description of the disease stands today with little improvement by modern writers, he stated that cases were almost invariably preceded by chronic diarrhoeas, associated with follicular ulceration in the lower bowel, it would therefore seem wise to define this disease as an increased hemolysis produced by factors which cannot be classified as a disease within themselves.

It is a well known fact that many conditions simulating this disease are found following malignant growths, and therefore should be classified as secondary anemias, but where a substance is found in the intestinal mucosa without the presence of intestinal parasites capable of producing all of the symptoms and blood findings of true pernicious anemia, are we not justified in so diagnosing this disease? Let this be as it may, the object of this paper is to deal with a grave form of anemia with all of the symptoms and blood changes recognizable in the true type, having their origin from intestinal sources whether they be clas-

sified as such or not. The trend of opinion at the present time is that these conditions are of infectious origin and in the majority of the cases the infection is primarily located in the mucous membrane of the large intestines.

Hunter defines the disease as a "definite, specific, hemolytic, infective disease." More recently Tallquist has suggested that within the mucous membrane of the bowel there is a substance which has marked hemolytic power, capable of producing the destructive blood findings in pernicious anemia; his observations are the same as those of Hollis, Tixier and others, all of whom have demonstrated that many grave anemias the exact prototype of essential pernicious anemia is a hemolysis of gastro-intestinal origin. Of the eleven cases coming under my observation there were gastro-intestinal symptoms in ten either preceding or developing during the course of the disease; nine were males and two females, the youngest being 41 years old, the oldest 71. In all except one the symptoms developed very gradually and insidiously with general muscular weakness, progressive loss of strength and shortness of breath on exertion with an instability of the pulse which was quite characteristic, frequently slow and compressible, but always increasing from 20 to 40 beats on any excitement or exertion. In all cases except one, which was in a negro, the skin was pigmented, varying from light lemon hue to a dark bronzed color, as will be noted in one case simulating Addison's disease of the superarenal capsules. Hemorrhages from the bowel or under the skin occurred in six of the eleven cases. Multiple neuritis was present in three cases, in two of which wrist and foot drop characterized the latter stages; parasthesia was common in all and oedema of the ankles present in all. Haemic murmurs existed in the large proportion of the cases. In the case 71 years old, general anasarca was a late symptom; sore tongue and mouth existed in five of the eleven; the stomach contents showed true achylia in all except in one case, in which a trace of hydrochloric acid was present throughout the attack. Albuminuria was not a marked symptom in but two cases; in the last three cases indican and skatol were found in abnormal quantities. It is but fair to state that in the cases seen prior to these three neither of the above were examined for, but since Emmerson, Lichty and others found both indican and skatol in large quantities in the urine of patients suffering from this disease we have examined for them in each case and our observations concur with those found by others. In one case a chronic paranchymatous nephritis was present, the patient dying of uremia. This case I saw with Dr. Dake, of Nashville, Tenn. Her red cells were 870,000 and neucleated with marked poikilocytosis, the white blood corpuscles were 4,000 and the hemaglobin 38 per cent. The urine was very scanty and loaded with albumen and tube casts, both hyaline and granular. The condition of the kidneys developed in the last months of the illness, but she had had a chronic diarrhoea for many years before. One year before her death she was severely grieved and shocked at the death of her sister and the symptoms of pernicious anemia rapidly developed, pursuing a rapidly downward course without response to any treatment. The youngest case was 41 and was important, and differed only in the fact that the pigmentation was so marked with bronzed areas as large as the hand over the abdomen and dark spots on the hands and face so suggestive of the pigmentation in superarenal capsule disease that a diagnosis of Addison's disease had been made. The mucous membranes had no discoloration, but were pale and anemic, diarrhoea was a marked factor and had existed for several years with blood in the stools more or less constant.

The diagnosis was only made by an examination of the blood showing a typical progressive pernicious anemia; unfortunately the figures were lost so that I cannot give the exact report. The prostration was very marked and delerium existed the last month of the illness. The only case where constipation was

present was a syphilitic in whom the nervous symptoms were suggestive of locomotor ataxia, finally developing multiple neuritis with deep melancholia and occasionally delirium before he died. One of the most annoying and intractible symptoms in this case was a general pruritis which would come intermittently, lasting for a week or so throughout the attack. He lost strength very slowly, and the muscular weakness was a late symptom, hydrochloric acid was present until the last month of the illness, while the red cells were neucleated the count was never below 2,000,000. He constantly complained of disturbed digestion, and washing the stomach disclosed large quantities of mucus.

The last case is one occurring in my service at the Nashville City Hospital and now under the care of my associate, Dr. W. C. Dixon, in the hospital connected with the Medical Department of Vanderbilt University. Being a negro man 45 years old; received the first week in April of this year. He had marked muscular weakness, shortness of breath and instability of the pulse which varied on the slightest exertion, even faintness being produced by the effect of turning in the bed; also oedema of the ankles. He came to the hospital for diarrhoea and gastro-intestinal disturbances; the emaciation was moderate and the stomach contents showed complete absence of hydrochloric acid with the presence of lactic acid; his mucous membranes were very pale and his exhaustion extreme. On April 10, 1908, the red blood cells were 1,800,000, the white blood cells 3,000, hemaglobin 30 per cent. He was given ascending doses of arsenic, taking twenty-nine minims three times a day without appreciable effect, with colonic irrigations of normal salt solution twice a day. On May 5, 1908, under this treatment his red blood cells were 2,000,000, white blood cells 5,000, hemaglobin 50 per cent. On May 23, the r. b. c. were 1,110,000, w. b. c. 3,500, hemaglobin 50 per cent. The neucleated red cells were in great numbers, both normoblasts and megaloblasts, with marked poikilocytosis being present. At this time 95 per cent of the bacteria in the stools were anaerobic and a 24-hour specimen of the urine showed a few hyaline and granular casts with trace of albumen and no sugar; the ethereal sulphates were present in enormous quantities, as well as indicans, according to Jaffe's test, were present in large quantities, as well as skatol. At this time, namely, May 23, 1908, the condition of the patient was so grave and his dyspnoea, together with his inability to assimulate food, so prostrating that the case was apparently hopeless. Not responding to any plan of treatment, and showing by all of the symptoms present as well as in the blood findings, stomach tests, as well as the tests of the urine as given above, all the evidences of progressive pernicious anemia, and after considering that 95 per cent of the intestinal bacteria were anaerobic in character and that despite colonic irrigation and large doses of arsenic, the condition was progressively worse, it was finally determined with the consent of the patient to do appendecostomy and try colonic irrigation by this means. The operation was performed by my colleague, Dr. L. E. Burch, on May 23, 1908, and colonic irrigation given twice daily of 1500 c. c. or normal salt solution, which has beeen kept up every since. While the patient remained delirious for a week following the operation and either from the disease or large doses of arsenic he developed a multiple neuritis; this, together with the fact that he had to be strapped to the bed seemed an unfavorable outlook following our operative procedure, yet the response was truly remarkable. The blood immediately improved and on June 2, less than ten days after the operation, the red blood count was 2,600,000; his hemaglobin 51 per cent. His convalesence has been slow, but encouraging; his appetite and digestion has improved so that his weakness and exhaustion gradually disappeared until at this writing he apparently is well without dyspnoea, and with tests made at frequent intervals, all showing continued improvement, until at the present

time, while he has been kept in the bed because of the complete wrist and food drop following his multiple neuritis, yet on October 10, 1908, the following condition was present: The stomach contents had shown complete absence of hydrochloric acid, with every test made up until October 10, 1908, when hydrochloric acid was found only in a trace; the quantitative analysis we were unable to make because of excessive motility of the stomach, which made it quite difficult to get any of the test meal, but sufficient was gotten to show that lactic acid was gone and hydrochloric had returned in small quantities. This I regard of great value, because of the fact that in my experience in all of the other cases hydrochloric acid never returned in the stomach contents.

On October 7, 1908, the blood count showed red blood cells 3,600,00 and white blood cells 7,000, hemaglobin 62 per cent, with no neucleated reds or poikilocytes. It is of interest to note that before the operation 95 per cent of the bacteria in the stools were anaerobic; ten days after the operation 40 per cent were anaerobic; thirty days after the operation 20 per cent were anaerobic in character, while at the present time the stools have only anaerobic bacteria in normal quantities. No other causative bacteria or parasite were found in any of the reported examinations of the stools. It is also worthy of note that notwithstanding the large amounts of ethereal sulphates, indican, and skatol found in the urine before the operation, which is characteristic of pernicious anemia, that one month after the operation they were present only in normal quantities in the urine; this still being the condition.

For these examinations of blood, stools, urine and stomach contents and the great care taken in the work, I must express my thanks to my colleague, Dr. Wm. Litterer, whose accurate and scientific assistance has been invaluable both before and after operation.

This patient we have kept constantly under observation since last April; repeated examinations have been made by Dr. Litterer and Dr. Dixon, and the colonic irrigations of normal salt solution twice a day has been constantly given through the opening in the appendix. He has had no other treatment and with his returning strength and health his blood has practically become normal. What I regard of great importance, hydrochloric acid has again appeared in the stomach; he has now no digestive disturbance or diarrhoea, and but for his wrist and foot drop is apparently well. While of course it is too soon to claim a cure, nor would it be justifiable to advise appendicostomy, because of the brilliant results shown in this case and where it is at all possible to use colonic irrigation thoroughly in the cases showing quantities of the anaerobic bacteria in the stools and the patient responds to this treatment, I would certainly not advise the operation, but when the last ray of hope is gone and dissolution eminent as in this case, or where the intestinal symptoms warrant, the belief that the origin of the trouble was located in the colon, I feel that it is not too much to say that this procedure is not only justifiable, but as a dernier resort, promises more than any other treatment within my knowledge.

It is possible that the profession is not yet ready to accept the etiological findings in this disease, still holding to the old idea that a demonstrated cause takes it out of the classification of the progressive pernicious anemia of Addison, yet with the symptoms and laboratory findings typical it is to the mind of the writer illogical to longer consider any pathological condition without a cause for its existence. This, together with the accurate and painstaking care in the management of the above case, as well as the seemingly brilliant results following the treatment being my excuse for presenting this subject, fully realizing the tendency of this disease to improvements and relapses until the fatal issue terminates it, yet the return to seeming health in this case is not at all like other cases occurring in my experience, where all improvments, though marked, were far short of complete restora-

tion, especially in the return of hydrochloric acid in the stomach contents.

CONCLUSIONS

First—That all cases of pericious anaemia should have a thorough examination of the stools, especial care in seeking for the bacillus capsulatus aerogenes.

Second—When this bacillus or the percentage of anaerobic bacteria found in evacuations from bowels is large, then after thorough trial at colonic irrigation, and failure to improve symptoms lessens their percentage, then the operation of apendicostomy is warranted.

Third—While over a year has passed since the operation and the patent was seemingly well when last heard from, it would not be safe to claim a cure, owing to the well-known tendency to improve and relapse in this disease.

DISEASES OF THE FEMALE BREAST

ALEXIUS M'GLANNAN, M.D., BALTIMORE, MD.

The function of the breast is in no way connected with general metabolism; its only secretion is the external one. Primary diseases of the breast, therefore, are purely local lesions and their treatment is mainly surgical. The human race would be immensely benefited if there were no benign lesions of the breast, because then every swelling would be removed by radical operation as soon as discovered; and the sad cases would not exist

Fig. 1.—Diagnosis of breast tumors. Small infiltrating scirrhus. Note the dimpling of the skin over the tumor as the area of breast containing the tumor is pushed forward. (Photographed by Schapiro. Dr. Bloodgood's case.)

where the opportunity of cure has been lost, either by awaiting a diagnosis or by ineffectual attempts at cure by incomplete operation. This diagnosis between benign and malignant diseases of the breast is one of the most important as well as one of the most difficult questions that confronts the surgeon. It places on him also the obligation of acquiring special training in surgical pathology, particularly in the naked eye appearance of these lesions as they are seen at the time of operation.

Embryologically the breast may be regarded as a specialized skin gland. During infancy the breast consists of a number of branching ducts lined by cuboidal epithelium and ending in club-shaped processes. The ducts unite and reach the surface of the skin through the nipple. Between the ducts there is a loose connective tissue supporting structure, *the interlobular stroma*, and the entire breast is surrounded by subcutaneous fat. The epidermis of the nipple and of a zone around it, the areola, is specialized.

At puberty the nipple becomes larger, the areola becomes wider and more pigmented, and develops special glands. The club-shaped processes at the ends of the ducts become epithelium-lined acini (*the parenchyma*), around which there is developed a myxomatous supporting tissue (*the intralobular stroma*), carrying the principal lymphatics and blood vessels of the breast.

When this development is complete we have the normal breast, a gland consisting of branched ducts terminating in acini, supported by myxomatous connective tissue, gathered into lobules each of which is surrounded by fibrous connective tissue, the interlobular stroma. The breast is surrounded by subcutaneous fat and is sharply circumscribed from this fat as well as from the underlying pectoral fascia. There is no distinct capsule.

The breast undergoes physiological hypertrophy during lactation. The number of acini is increased and the wall of each acinus changes from a smooth surface covered by a single layer of low epithelium to an involuted vesicle carrying a piled-up covering of epithelial cells of the higher functionating type. This epithelial hypertrophy is at the expense of the stroma. The involution of the breast after lactation results in fatty degeneration and fibrosis of the stroma.

The senile breast shows atrophy of the parenchyma and of the intralobular stroma, with diminished area of vascularity. The parenchyma and stroma are usually replaced by fat, when the breast retains its ordinary size. Often instead of fat, there is fibrosis

Fig. 2.—Diagnosis of breast tumors. Simple cyst. Note the bulging of the benign tumor as the area is pushed forward. (Photographed by Schapiro. Author's case.)

of the breast; then it will become much smaller in size.

The symptom of onset in diseases of the breast is usually one of three: tumor, discharge from the nipple, or pain. Any one of these may be absent in the sum total of symptoms, but one of them always is prominent and usually first calls attention to the disease. Trauma is often given an etiological significence by the patient. Except in the inflamations, it is more than likely that the injury merely calls attention to a previously existing condition. That trauma will stimulate growth of tumors is probable.

Tumor.—Occasionally the outline of the tumor is sufficiently definite to be visible. More often it can only be distinguished by palpation. The fingers may feel one or more lumps

harder than the surrounding breast tissue—areas of induration. These areas vary in size and shape according to the outline of the tumor and its situation in the breast substance. A cyst near the skin will present a smooth, round surface, while a cyst of the same size deep down in a fat breast will feel like a flat induration. In palpating breasts, especially those of young and nervous women, a number of areas of induration are often made out, that disappear under continued palpation. These are areas of breast tissue that become engorged with blood as a result of stimulation by the palpating fingers. Their transient character distinguishes them from the pathological areas of induration, all of which are permanent.

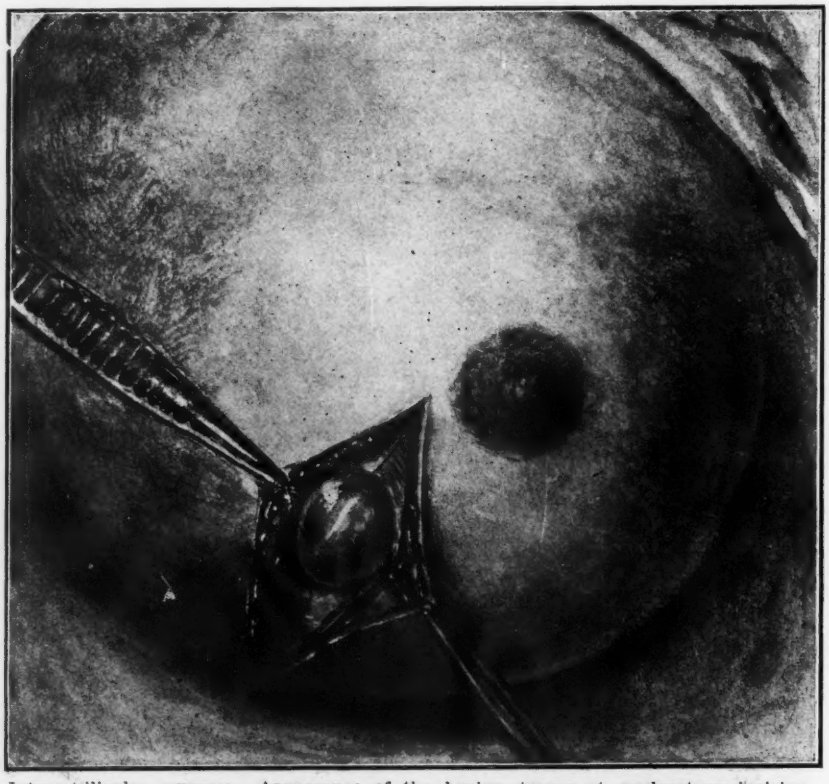

Fig. 3.—Intracanilicular myxoma. Appearance of the benign tumor at exploratory incision. (From painting by Miss Hayes. Dr. Bloodgood's case.)

Discharge from the Nipple.—Excluding colostrum and milk, a discharge from the nipple is a positive sign of disease. A greenish or yellow discharge occasionally occurs in atypical parenchymatous hypertrophy.

Blood from the nipple, unless the direct result of traumatism, indicates one of two conditions, a cyst with an intracystic papilloma or a cancer cyst.

Pain is the most irregular of the symptoms of onset. It is most prominent in simple cysts, but may occur with any tumor. It is the only symptom of neuralgia of the breast. Pain without palpable tumor is rare in new growth. Neurasthenia and hysteria are often associated with pain in the breast. Women who have acquired some knowledge of breast tumors frequently come to the surgeon complaining of pain in the breast, without tumor. These pa-

tients should be examined carefully and observed for about three months. If, at the end of that time no lesion is made out, the patient may be discharged as free from cancer.

Diseases of the breast may be hypertrophies, tumors or inflammations. The tumors may be either benign or malignant. A lump in the breast may present such clinical characteristics that we are able to recognize it as belonging to one of the three groups, or it may resemble any two or all of them, being then what we call a clinically doubtful tumor.

The clinical signs of malignancy show in the character of the tumor and its effect on the surrounding tissues. In the absence of all other signs the highly skilled hand may recognize a carcinoma by palpation of the tumor. There is a peculiar hardness and irregularity of outline that is diagnostic, but often this is made out with great difficulty and an exploratory incision becomes necessary. Local oedema of the skin and subcutaneous fat is a sign of a rapidly growing and very malignant type of tumor. The prognosis with such tumors is practically hopeless.

Mensuration.—The distances from the nipple to the border of the breast in corresponding quadrants are usually equal on both sides. A shortening of this distance over the quadrant in which the tumor is situated is strong evidence of carcinoma. This sign, like most of the other signs of malignancy, is an evidence of infiltration by the growing tumor.

Retraction of the nipple may be pathognomonic of cancer. The possibilities of error are congenital retracted nipples, and previous attacks of mastitis. As a rule these points are brought out distinctly in the history. Early retraction is recognized by pulling the nipples forward and noting the fixation to the deeper structures present on the affected side.

Fixation of skin, dimpling, atrophy of subcutaneous fat, and shortening of the trabeculae are certain signs of malignancy, similar to retraction of the nipple and subject to the same sources of error. Definite fixation of skin and dimpling, like ulceration and fungus formation, are symptoms of well advanced disease. While they make the diagnosis positive, when they are present, the prognosis is almost always hopeless.

The shortening of the trabeculae, like atrophy of the subcutaneous fat, is an early symptom. Bloodgood (Kelly-Noble, Abd. Surgery, Vol. II, p. 186) describes the following method of demonstrating this shortening. Grasp the breast with both hands and push forward the

Fig. 4.—Diffuse virginal hypertrophy. (Johnson's case. From Bloodgood's article in Kelly-Noble's Surgery.)

area containing the tumor. "If the lesion is benign, the skin between the hands will bulge; if it is malignant, in some cases, the trabeculae will produce one or more dimples, a positive sign of cancer."

Axillary Glands.—Enlargement of these glands is of little value in diagnosis. They are enlarged frequently from causes other than

cancer, and in cancer are often very small, although already metastatically involved. Whenever the cancer glands are palpable the breast signs will be sufficiently definite to prove the tumor clinically malignant.

Clinically benign tumors are tumors whose history and physical characteristics exclude malignancy. Thus a tumor of several years duration, occurring in the breast of a woman under 25 years of age, growing very slowly, and not infiltrating but encapsulated, is a clinically benign growth. When multiple, such tumors are distinctly benign, but a single tumor of short duration should always be viewed with suspicion.

Clinically doubtful tumors form the most important group of breast lesions. Here we find the early cancers that offer the greatest hope of cure by operation. In this group are included (1) the previously benign tumors undergoing malignant degeneration, (2) the early tuberculosis and (3) other inflammations, as well as (4) the variations in the disease of the involuting breast.

Exploratory incision is necessary to distinguish between the various lesions in this group of clinically doubtful tumors. The differential diagnosis is made best from the naked eye appearance of the tissues exposed by the incision. To do this considerable training is necessary, but the faculty can be acquired and is an important part of the education of one, who expects to operate for tumors. The naked eye study gives more definite information than can be obtained from immediate frozen sections. Other kinds of sections are entirely out of the question, because the removal of a piece of tumor for diagnosis, with the expectation of operating another day, destroys the patient's only hope of cure.

The evidence from the incision is conclusive and most valuable. We must never allow facts in the clinical history to weigh against the signs shown by the incision.

Exploratory incisions must never be made unless the surgeon is prepared to perform at once the complete radical operation in case a malignant tumor is discovered. The incision should be made under general anaesthesia, in a hospital, and after the patient and everyone else concerned has been prepared for the radical operation, in case it is found necessary.

Disregarding wounds and other direct results of traumatism, as well as non-indigenous tumors, the lesions of the breast may be classified according to the age of the patient, as follows:

	PUBERTY.	LACTATION.	MENOPAUSE.
Abnormal hypertrophy.	Diffuse virginal hypertrophy.	Diffuse gravidity hypertrophy.	Atypical senile parenchymatous hypertrophy.
Inflammation.	Tubercular Metastatic.	Pyogenic. Tubercular.	Tubercular.
Benign tumors.	Intracanilicular myxoma. Adeno-fibroma.	Galactocele.	Cyst.
Malignant tumors.	Sarcoma.	Cancer.	Cancer. Sarcoma.

Diffuse virginial hypertrophy is always a bilateral disease, characterized clinically by the formation of enormous breasts. There may be a slight discharge from the nipple. The condition shows no tendency to spontaneous recovery. The weight of the breasts is the only symptom, and when this causes discomfort, amputation of both breasts is proper treatment. No other method of cure has been found.

The pathology of this lesion is a general diffuse overgrowth of breast tissue. On section, we see the breast tissue growing into the subcutaneous fat, the fibrous stroma is soft and juicy, and pink dots of parenchyma with cut ducts are easily made out. Microscopically, we see that the architecture of the breast is lost, the parenchyma is increased in quantity with the epithelial cells of the higher type. There is a great overgrowth of young cellular connective tissue, which makes the bulk of the hypertrophy.

Gravidity hypertrophy resembles the virginal type, but the onset of the disease occurs during pregnancy. The secretion of milk is not necessarily disturbed. The pathology and treatment is practically the same in both lesions. There is a possibility of carcinoma developing in these breasts. Bloodgood (Kelly, Noble Abdom. Surg., p. 199) records two cases.

Atypical senile parenchymatous hypertrophy (Bloodgood-, also called *chronic cystic mastitis* (Billroth), *Abnormal Involution* (Warren), Reclus' disease, Schimmilbusch's disease, etc. The variety of names shows the difference of opinion that exists concerning the etiological character of this lesion. In many ways it seems inflammatory, but more than likely it is some peculiar hyper-

Fig. 5.—Adeno-fibroma. Photograph of the patient showing the large bulging tumor. (Photograph by Schapiro.)

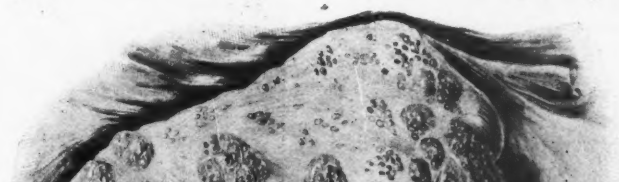

Fig. 6.—Gross appearance of the tumor shown in Fig. 5. (From painting by Miss Hayes.)

trophy. It certainly has some relation to the development of cancer.

At the menopause the breast passes by a gradual series of changes from the young to the senile stage of its development. There is hypertrophy of connective tissue with rapid

Fig. 7.—Intracanilicular myxoma. Cut surface of the tumor shown in Fig. 3. Also the appearance of the specimen removed. (From painting by Miss Hayes.)

atrophy of parenchyma, often with fatty degeneration.

In some women at the menopause the epithelium of one or more areas of the breasts becomes active. The epithelial cells of the higher type proliferate and degenerate, and there is also dilatation of the ducts and acini. This is called the stage of ectasia. From this stage the disease may progress in one of two directions.

1. *The cystic variety.* The epithelial proliferation plugs a duct, the secretion back of this plug causes pressure in the duct and acinus. This in turn becomes swollen, globular in shape, and forms an epithelial lined cyst. The consequent interference with the circulation and the resisting pressure of the stroma, cut off nutrition, the epithelial lining is absorbed, and a smooth-walled cyst results.

2. *The adeno-cystic variety.* Here the epithelial proliferation continues. The acinus becomes involuted and the arrangement of the cells resembles that seen in normal lactation. It may take the form, however, of an intra-cystic papilloma, or of a true adenomatous proliferation, when the cavities of the ducts and acini become packed with epithelium, leaving here and there an open lumen.

In the cystic form the tendency of the disease is toward complete epithelial degeneration, and there seems to be a consequent immunity to cancer. On the other hand, in the adeno-cystic type there is unusual epithelial

Fig. 8.—Multiple cysts in senile parenchymatous hypertrophy. Photograph of the alcohol specimen. (Bloodgood.)

proliferation. Such proliferation is extremely dangerous in organs undergoing involution, because of the slender margin that separates this proliferation from malignant growth. Clinical and pathological observation show that such change is frequent in this disease.

Clinically, atypical parenchymatous hypertrophy is characterized by single or multiple

areas of induration, in one or both breasts, usually hard and nodular, but occasionally some of the multiple areas are soft or fluctuating. Pain is relatively common, and a discharge from the nipple often occurs. The discharge may be yellow, or milky, or brown serous fluid, blood or pus. Blood from the nipple means papillomatous change in the cyst.

Fig. 9.—Stage of ectasia in senile parenchymatous hypertrophy. (From microscopic drawing. Bloodgood.)

An exploratory incision will differentiate the forms of the disease and indicate the treatment. When thin, smooth-walled cysts are found without parenchymatous proliferation the large cysts are excised and the small ones incised. If epithelial proliferation is apparent, either as papillomatous or adenomatous change, the breast is amputated, but a careful, systematic search must be made for a malignant area in such a breast. An increase of the fibrous tissue, with small cysts, and the presence of granular areas free from cysts from which material can be expressed, is characteristic of cancer; and whenever this is discovered the complete radical operation must be done immediately.

Whenever the simple cyst is in the nipple zone the breast is amputated.

Mastitis. Tubercular mastitis is a chronic lesion that suppurates early. Usually the abscess opens spontaneously at several points, forming multiple sinuses. The disease begins as an infiltrating area of induration that rapid-

Fig. 10.—Carcinoma of the breast. Note the retraction of the nipple, the dimpling of the skin and the retraction of the breast on the chest wall. (Photograph by Dr. Shaw. Author's case.)

ly softens and suppurates. A spontaneous abscess in a non-lactating breast is practically always tubercular. If the patient comes under observation before the stage of softening, an injection of tuberculin will give a distinct local reaction and make the diagnosis. When the process is hard and circumscribed, excision will probably be sufficient operation for its cure. As a rule, when we see multiple sinuses or abscesses, amputation of the breast is required. It is not necessary to remove the axillary glands unless they are large and softened.

Mastitis by extension from infected ribs, axillary glands, etc., may occur.

Lactation mastitis is pyogenic. It is usually an acute suppurative inflammation coming on before the fourth month of pregnancy. There may be single or multiple areas of induration, that are tender and are associated with fever and leucocytosis. As a rule an abrasion of the nipple is discovered.

Lactation mastitis may go on to resolution without suppuration, but this is rarely the case. When the abscess develops, the clinical signs are usually very distinct. The mastitis

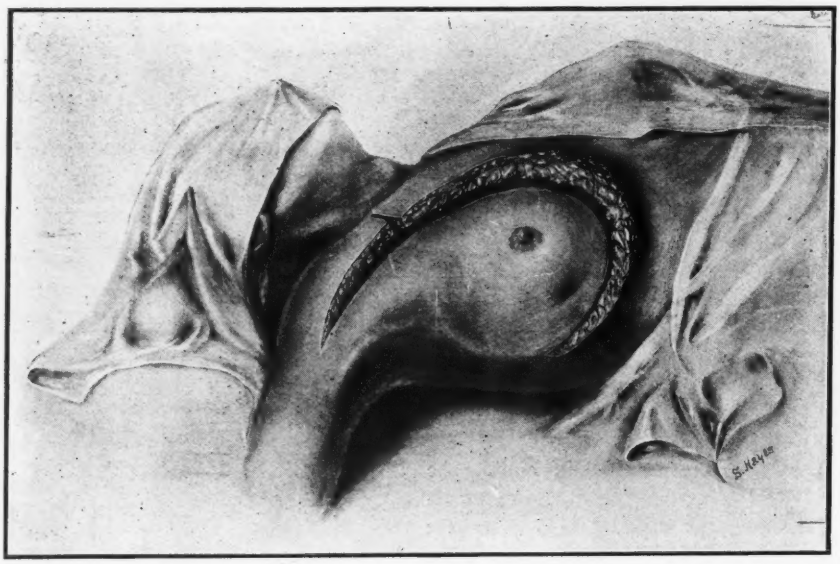

Fig. 11.—The operation for cancer of the breast. Sketch to indicate the extent of the primary incision. (Bloodgood.)

Syphilitic mastitis is rare. A persistent area of induration, however, should lead to exploratory incision, where doubtless a gumma will be recognized. Chancre of the nipple is like chancre anywhere else, and is distinguished in the same way.

Metastatic mastitis is most common as a complication of mumps, and has also been observed in typhoid fever. It is treated by means of ice caps and similar efforts to diminish the inflammatory reaction. Abscess frequently occurs.

may develop a tender area of induration, which disappears in a few days, without having caused any constitutional disturbance. Or the area may gradually become larger, and give rise to symptoms of tumor. When this mass is incised a chronic abscess is found.

The area of induration of mastitis should rapidly resolve, or form an abscess. In an area of induration persisting unchanged for months, carcinoma is very likely to develop. (Bloodgood, Kelly-Noble Gynaecology and Abdominal Surgery.)

For an acute lactation abscess incision and drainage is sufficient. The chronic abscesses require excision of the wall. Neglected cases with many sinuses necessitate removal of the breast.

The Bier hyperaemia suction jar should always be used before incision. (*Progressive Medicine*, December, 1906.) A jar large enough to take in the entire breast is required. The suction relieves the pain and may also lead to resolution. When incision is required after this treatment, the opening should be made very small. Multiple incisions are never necessary.

Fig. 12.—The operation for cancer of the breast. Sketch to show the division of the pectoralis minor muscle. The clavicular bundle of the pectoralis major has been separated and the muscles divided near the sternum. (Bloodgood.)

THE SOLID BENIGN INDIGENOUS TUMORS of the breast are fibro-epithelial growths, either intra-canilicular myxoma or adeno-fibroma. Pure adenoma is a rare tumor of the breast.

Intra-canilicular myxoma (*Periductal-fibroma*).

This is the most common tumor of the breast occurring in young women. Single or multiple growths may be found. Clinically the tumor is elastic, nodular and distinctly encapsulated. When multiple tumors of this character exist in the breast of a woman under 25 years, a positive diagnosis can be made, and operation will not be required, unless one tumor is the seat of pain or distinct growth. Dealing with single tumors it is better to remove the growth, because frequently a single intra-canilicular myxoma grows large and becomes a sarcoma. The largest known breast tumors are huge intra-canilicular myxomatas.

At exploratory incision these tumors are recognized by the distinct capsule, the lobulation and the elasticity. The cut surface shows roundish, bulging, myxomatous lobules of various sizes. Microscopically, we see increased parenchyma with an overgrowth of the myxomatous intra-lobular stroma.

Adeno-fibroma may occur as single or multiple tumors, either large or small. The tumor is usually smooth and quite firm in consistency.

There is often some pain and tenderness and the growth may be rapid. Certain cases of carcinoma may be traced to a previously quiescent adeno-fibroma.

When single, the tumor should be excised. In an older woman a diagnosis between a firm adeno-fibroma and a carcinoma is very difficult clinically, or by means of frozen sections. In these cases, however, the naked eye appearance of the encapsulated tumor shown by exploratory incision makes the diagnosis very simple.

Grossly the cut surface of an adeno-fibroma shows the pink dots of parenchyma in the fibrous stroma, and in the older tumors crevices from which the epithelium has degenerated and disappeared.

Cysts. We have mentioned the occurrence of cysts in the disease, *atypical senile parenchyamtous hypertrophy*, and have indicated a possible method for their formation in the normal process of involution of the breast. Cysts are the characteristic benign tumors of the breast at the menopause.

Clinically they appear as single or multiple lesions whose physical qualities vary with their position in the breast and the character of their contents. A large single cyst near the skin shows as a smooth, spherical bulging, and is felt to be an encapsulated mass, which may or may not fluctuate. The swelling gives irregular symptoms of pain, and there is usually a history of rapid development and of variations in its size. This last fact is a valuable point in diagnosis. When the cyst is buried deep in the breast tissue its outline is lost, and we can only make out the area of induration. The multiple small cysts feel like shot to the palpating fingers.

The simple cyst has a thin, smooth wall of connective tissue; the contents are colorless or greenish. These cysts appear blue as they

Fig. 13.—The operation for cancer of the breast. Sketch showing the extent of the completed dissection. Note that the skin is undermined to allow a more extensive removal of subcutaneous fat. The skin of the axillary flap is undivided. (Bloodgood.)

are approached by incision. They are cured by excision. Warren (*Journal A. M. A.*, July 15, 1905) has described a method of exploring the breast from below, and exciting cysts, etc., that permits their removal and at the same time allows restoration of the breast free from deformity.

Briefly, the points in the operation are: the skin incision is made along the lower borders of the breast, down to the pectoral fascia; the breast is then inverted and the base of the gland exposed through the incision. The necessary incisions are made through the base, and if any tissue is removed it is taken in a wedge-shaped piece. The space left is closed with cat-gut, while care is taken to prevent retraction of the nipple. The skin is closed without drainage.

Cysts with intra-cystic papillomatous growths are characterized clinically by discharge of blood from the nipple. The cancer cyst has the same sign. These papillomatous cysts require the most careful study at operation, because cancer is often developed in the papilloma. At the exploratory incision the cyst is opened, and when benign, the contents are fluid and hemorrhagic. The papilloma may be seen and felt, and there is never any induration of its base. When the papilloma has become malignant, the base is indurated, and the cyst contents then become thick, grumous, and granular. There may be definite cancer nodules in the wall of the cyst.

The breast must be removed to cure a papillomatous cyst. When the malignant change has occurred the complete cancer operation must be performed.

SARCOMA does not occur as frequently as carcinoma of the breast. The commonest primary sarcoma is that found in a large intracanilicular myxoma. Whenever these myxomata grow so large that they occupy most of the breast, sarcomatous change is very likely to take place. For this reason it is best to remove a single intracanilicular myxoma in a patient of any age. When the tumor is a large one, occupying most of the breast, the entire breast should be removed, and in the case of a woman over 35, the pectoralis major should also be included.

A sarcoma developed in the intracanilicular myxoma is a simple sarcoma of a relatively low grade of malignancy, most often a spindle cell tumor. Occasionally osteosarcoma, or mixed giant cell, spindle and round cell sarcoma occurs in the breast.

Angiosarcoma is rather rare, but is sometimes found. These tumors are always very malignant and form early metastases. The sarcoma of the breast of young girls is most often a metastatic angiosarcoma from a primary sarcoma of the ovary. In these cases no operation should be performed except for the relief of the local condition.

CARCINOMA of the breast may be classified as follows:

Adeno-carcinoma.	Pure, Cystic, Comedo.
Medullary.	
Scirrhus.	Infiltrating. Circumscribed.

Adeno-carcinoma is the least malignant of all forms of cancer of the breast. The average of cures in all varieties is about 75 per cent. Probably this is the initial form of most mammary cancers, scirrhus and medullary being the end forms.

In adeno-carcinoma the glandular arrangement of the epithelial cells is preserved, and is shown in the naked eye appearance of tumors of this group; the collections of acini showing as well-defined yellowish-white areas. Microscopically the preservation of glandular arrangement with the invasion of the basement membrane by epithelial proliferation is characteristic.

Medullary carcinoma is one of the end forms of cancer of the breast. These tumors are large and relatively soft, very cellular and juicy, and ulcerate the skin early. The cell masses show many areas of necrosis, often large; and occasional large areas of cystic

degeneration occur. The axillary metastases are large. Microscopically they show large alveoli of epithelial cells in a scanty stroma.

The prognosis varies with the type of cell, with small cells of the resting type, about 60

Fig. 14.—Result of operation for cancer of the breast. Photograph of patient six months after complete operation. Note the power to use the arm, the good axillary forniix and the result of the immediate skin graft. (Photograph by Schapiro. Author's case.)

per cent recover. For all cases the statistics show 50 per cent cured, but these include some of the most malignant of breast tumors, alveolar tumors, with large cells, which cannot be distinguished clearly from endotheliomata.

Scirrhus are characterized by containing relatively large amounts of fibrous stroma. We distinguish two forms, infiltrating and circumscribed. Infiltrating are divided into large and small.

Small infiltrating scirrhus is a small star-shaped tumor, the radiating portions extending out in all directions through the breast. The radiating lines show the yellowish-white dots of collections of epithelial cells. In this form the dimpling of skin or retraction of nipple is most marked. The axillary metastases are small and often impalpable even late in the disease.

Microscopically, scirrhus carcinoma shows small areas of epithelial cels in a more or less dense fibrous network. The prognosis of this form is about 40 per cent of cures.

Large infiltrating scirrhus is a later development of the smaller form. There is often ulceration of the skin and skin metastases. The prognosis is bad, about 20 per cent cured.

Circumscribed scirrhus presents the appearance of being separated from the surrounding

Fig. 15.—Result of operation for cancer of the breast. Photograph of patient at the first dressing on the tenth day. Note the healed wound with the skin grafts, the extent of the operation down to take the fascio and fat of epigastric region. (Photograph by Dr. Preble. Author's case.)

breast tissue. The tumor is very hard and the characteristic dots and lines are easily seen. On close examination, especially with a lens, the edges of the tumor can be seen

extending irregularly for a short distance into the surrounding tissue. Microscopically the infiltration is definite, but never extensive. This form of scirrhus offers the best prognosis. About 50 per cent cured.

Cancer cysts are cysts in the wall of which scirrhus carcinoma has developed. They are characterized by a thick wall and contain blood. The wall is smooth, which distinguishes them from the cyst with intra-cystic papilloma, the only other blood cyst in the breast. The prognosis is a little better than in ordinary scirrhus, about 60 per cent cured.

Classification is of interest only from the point of view of prognosis, and does not influence the treatment. All carcinomata require the complete removal of breast, muscles, and axillary glands in one piece. Sarcomata are treated by removal of the breast and the underlying muscles. It is not necessary to remove the axillary glands for sarcoma of the breast. (Sheldon (*Manual of Surgery*) states that in some cases of carcinoma, the removal of the breast and pectoral fascia, and a thorough dissection of the axilla is all that is necessary, and a more radical operation unjustifiable. This is false teaching and improper reasoning. The underlying principle of all operations for cancer is the removal of the tumor and all infiltrated tissue and metastases, without cutting through tumor tissue, or opening lymphatics in the route of metastases. In the breast this requires the complete operation. The route of lymphatic communication between the breast and the axillary glands involves the pectoral muscles. If Sheldon admits the necessity of removing axillary glands in these cases, surely he must admit the necessity of removing communicating lymphatics through which these glands have become involved. This can only be done by removing the muscles.

Many modifications of the breast operation have been recommended since the original publication of Halsted, the most important being those of Meyer and Warren, but, practically speaking, the operation is just as originally described. Lately much has been written about methods for saving skin. The saving of skin is very unimportant, because the defect that remains after bringing the wound edges up is easily covered by skin grafting. Furthermore, the certainty of local recurrence and skin metastases, with their pain and general distress, whenever too small an area of skin is removed, makes the removal of sufficient skin most important. The same facts apply to the methods of plastic closure of the wound. One should operate for the cure of cancer with a single point in mind, that is, the complete removal of the disease. When flap methods of closure are to be employed, they offer a temptation to limit the extent of operation by the exegencies of the plastic manoeuver.

MALARIA: WITH SPECIAL REFERENCE TO WHAT IS NOT MALARIA FEVER*

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I shall discuss in this paper only the quotidian form of malaria fever: "bilious remittent fever," "estivo-autumnal fever," or simply malaria fever. I shall attempt to show that in the study of this form of malaria we have studied not alone malarial infection, but have studied many other diseases along with it—complications which we have accepted as a part of its symptomatology—accepting these symptoms as variations from its specific course and reasoning from this false premise, we have been led widely astray.

And we have in this manner learned to be content with the term malaria to cover any number of obscure troubles, which may be attended by a quotidian or continuous fever, reasonably short in its course, and which has little or no physical signs or objective findings to account for it.

It is admitted at the outset that the failure to diagnose malaria per se is one of the remotest probabalities, but if we reverse the proposition, I can assert, without fear of contradiction, that the diagnosis of short irregular febrile attacks as malaria fever is one of the most common errors of diagnosis in medicine.

It is my purpose to discuss this confusion in the diaignosis of this disease: how it has arisen; to show how it may be avoided; and to show also that malaria is the simplest of all diseases, as well as the most amenable to treatment.

Almost all diseases are said to have exceptions to the rule, that is, a certain train of symptoms are set down to them as being characteristic, and such variations from these characteristics as may appear are then described as the exceptions.

Malaria fever of all diseases is burdened with the greatest number of these exceptions, and with the widest variations. These exceptions are traditions, hoary with age, backed by eminent authority, universally accepted by the laity, and almost so by the profession.

Before the discovery of the malaria parasite, when the diagnosis depended on the clinical phenomena, the cold stage, the hot stage, and the sweating stage, errors in diagnosis, under these circumstances, were inevitable. We were certain then to include other diseases having the same phenomena under the diagnosis of malaria. Some of those old errors are still with us. And later, observers with no post-mortem facilities at hand for a final solution; with only the microscopical findings and clinical course to conclude from, have studied not only malaria, but a part of many other diseases along with it. These latter errors were too quite to be expected. We were looking for and expecting all kinds of variations, we had the dictum of the masters for them, why should we not find them? The pathologist even finds it difficult to free himself from the influence of these old beliefs. In cases of death from very acute illness the pathological findings are sometimes indefinite, and in malarial climates malaria pigment is often present in the bone marrow and spleen in such deaths as these. How easy to let this go as malaria and argue toxemia as the cause of death. All these things have been the contributing cause for our confusion in

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malaria; they have become a part of our faith, and in our minds a part of the disease.

TOXEMIA IN MALARIA.

If there is any toxemia at all given off during the cycle of the development of the malarial parasites, it must be extremely small and of minor significance. If this were not so, how could we have the amelioration of symptoms and feeling of comfort that comes to the patient in the remission of the fever. Celli's experiments, by injecting large quantities of blood serum from patients in paroxysm of malaria into other individuals, were entirely negative of results. Taking these two facts into consideration, the comfort of the patient in the remission of fever, and Celli's findings, it seems to me to clearly prove the minor significance of the toxemia.

PATHOLOGY.

Beside the engorgement of the spleen and liver, the pathology of malaria is principally in the blood. It is the simple destruction of the red blood cells by the maturing parasites, setting free hemaglobin, and the consequent lowering of the physiological function of these cells, in proportion to the number so destroyed. In addition there are the irritant products of pigment and the sporules. In pernicious cases, and in cases of impending death, the blood picture is a most striking one. The hemaglobin is reduced to fifty per cent or lower. The blood is drawn from the lobe of the ear with considerable difficulty, and when it exudes it is dark and grumous and clots quickly. Spread upon the slide, the leucocytes are seen to be enormously increased; the large, the small, and the polynuclears are crowded with pigment. The white cells will count from 20,000 to 40,000 or over. This increase of the whites is perhaps a relative one. The red cells are of every conceivable shape and size, and take the ordinary stain so deeply they are almost black. In addition to the parasites seen, nucleated reds are present in large numbers. Following this case to autopsy, in the smears from the cerebrum and cerebellum, we find in the capilaries and venus radicals that the blood cells are almost totally replaced by full grown parasites and pigment, and such red cells as remain in the vessels contain parasites of all ages. It is reasonable to assume that the same condition is present in the entire capillary system.

Keeping in sight of the fact that there is little or no toxemia in the cycle of developments; that it is without organic lesions, and its principal pathology is a periodic and acute hemolysis; and that the cell elements destroyed are physiologically and constantly reproduced,

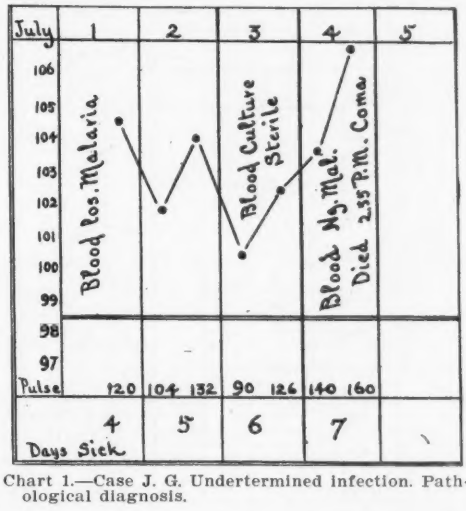

Chart 1.—Case J. G. Undertermined infection. Pathological diagnosis.

explains the low mortality and the simplicity of this disease. Its amenability to treatment is due to the above hypothesis also. As soon as the parasitic cycle is checked, all symptoms disappear and the blood functions promptly return to normal. All workers in fresh blood specimens are familiar with the agressive phagocytic action of the white blood cells on the full grown malaria parasites. On account of this function the leukocytes must be the scavengers that finally clear the blood stream of the pigment and other products of cell destruction.

CONFUSION OF DIAGNOSIS.

Malaria is not by any means the only disease characterized by irregular fever, chills

and sweats. Moreover, malarial infection may be present in a large number of other infections and so-called constitutional diseases. I append a list of diseases in which malarial infection has been observed as a complication:

Typhoid fever, yellow fever, measles, pulmonary tuberculosis, pleurisy-effusion (tubercular), pericaridtis (tubercular), amebic dysentery (mild), non-amebic dysentery (mild), sub-acute articular rheumatism, acute and chronic nephritis, elephantiasis, kalar azar,[1] tonsilitis (mild), undetermined infection, relapsing fever.[2]

diseases, having malaria parasites along with them, have symptoms and findings so obvious that they offer very little difficulty in the final diagnosis. There are, however, several of them that require some mention in detail.

SOME OF THE DISEASES WE CONFUSE WITH, AND DIAGNOSE AS MALARIA.

We are continually diagnosing and studying the indefiinte fevers under the head of malaria. Such as the hyperprexias of the tropics. typhoid fever of moderate severity and especially the very mild cases.

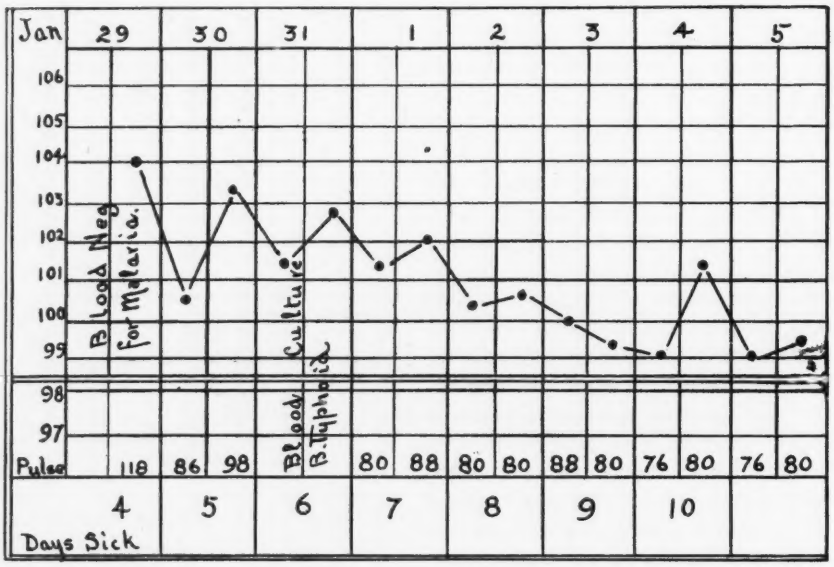

Chart 2.—Case J. W. Typhoid Fever. Note mal. like fever curve. Typhoid Fever positive by Blood Culture. Entire course of fever 10 days.

In view of the above facts, in the study of malaria, we must bear in mind that the finding of malarial parasites does not at all complete the diagnosis, but just begins it; that in studying malaria from the blood findings, and a few physical observations, we may be and often are studying malaria plus a number of other diseases. Therefore, to get a clear insight to the symptoms of malaria we must first be sure we have eliminated all intercurrent affections.

Fortunately, most of this long list of

Incipient tuberculosis, and occasionally deep-seated suppurations and mild sepsis, and above all, old underlying diseases that in the course of an acute malaria, are roused to acute activity. I shall now take these up in detail.

HYPERPYREXIAS.

Most of these hyperpyrevias are fairly well differentiated from malaria, under various names, such as thermic fever, heat stroke, and so on. There are, however, hyperpyrexias, apparently specific in their clinical course, in which a considerable percentage have malarial

infection. On admission of these cases to the wards little out of the ordinary will be noted, when suddenly the temperature will take an upward shoot to 106 or 107 Farh. The patient becomes wildly delirious for a short time, then turning to coma, in a few hours ends, in death. Or again, in some of these the temperature is high from admission and maintains a high level; delirium is constant, and wildly maniacal, necessitating forceful restraint in the bed. After three or four days the delirium subsides to a low muttering one, finally ending in coma and death. In some of the cases enlargement of the liver and spleen has been noted.

I have seen ten or twelve deaths of these fevers, in one a very mild malarial infection was present on admission, and a few parasites were found at autopsy. The remainder of them, although some had parasites on admission, showed no evidence of malaria at autopsy, except pigmentation. To illustrate:

Case 1—J. G. ———, Chart 1, age 22, admitted July 1, 1908, died July 4, 1908. Ill three days before admission. Headache, fever, chills and vomiting. First illness in ten months. Physical examination negative. Urine, albumen, hyaline and granular casts. Blood examination, leucocytes 10,000, malaria parasites, infection moderate. July 3, blood culture, sterile. July 4, blood negative for malaria.

Complete pathological findings:[3] Infection undetermined origin. Acute spleenic tumor, lymphatic hyperplasia of intestine and spleen. Acute degenerative nephritis. Sub-pleural tubercle, right. Tuberculous lymphadenitis, right. No malaria parasites at autopsy.

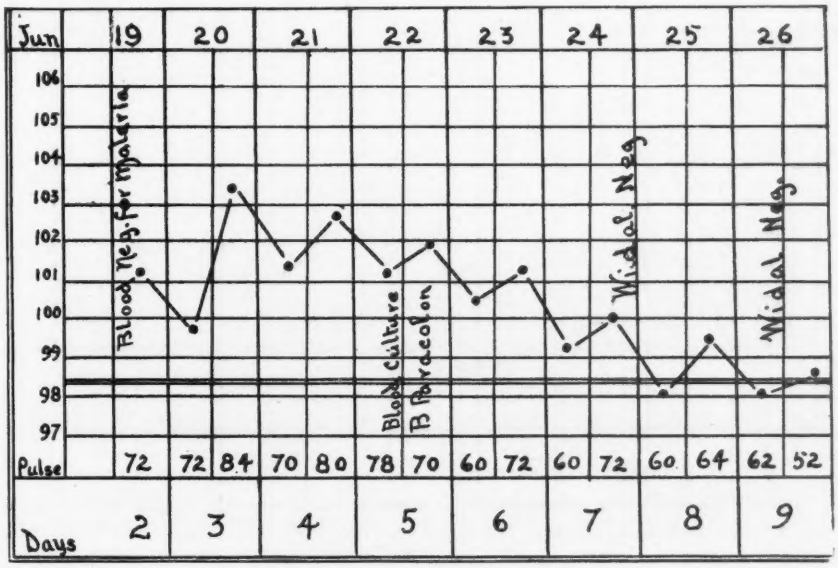

Chart 3. C. H. Typhoid Fever B. Paracolon. Note mal. like fever curve. Typhoid Fever positive by Blood Culture. Entire course of fever, 8 days.

Case 2.—H. C., age 18, admitted July 1, 1908, died July 5, 1908. Delirious on admission. No history obtained. Well nourished. Continuous, wild maniacal delirium, restrained in bed by force. Physical examination indefinite. Urine, albumen trace, hyaline and granular casts. Blood examinations: Leucocytes 8,600, negative for malaria. July

4, blood culture, sterile. Temperature on admission 105½ R. Maximum temperature 106½ R. Fahr. After a bath, July 5, p. m., there was a continued downward temperature until death, at 101½.

Complete pathological findings:[3] infection undetermined origin. Acute diffuse nephritis, sub-pleural, sub-pericardial, sub-mucous, ecchymoses of lungs, heart and pelves of the kidneys, respectively. Cloudy swelling of viscera. Acute spleenic tumor with increase of lymph tissue. Hyperplasia of lymph elements of ilium and colon. Icterus. Hematoma of ilium. Cultures, sterile.

of 105½ Fahr., but most of my patients at death had only a moderate temperature or were sub-normal.

TYPHOID FEVER.

Here perhaps we have encountered the greatest stumbling block in differential diagnosis, and the hardest to get over. Malaria, I suppose, has never been mistaken for typhoid fever, not long at least; but typhoid fever, especially the mild form, is constantly called malaria. The reason for this confusion is that the mild form of typhoid fever is not unequivocally admitted to exist, and added to this, is the presence of malarial infection in

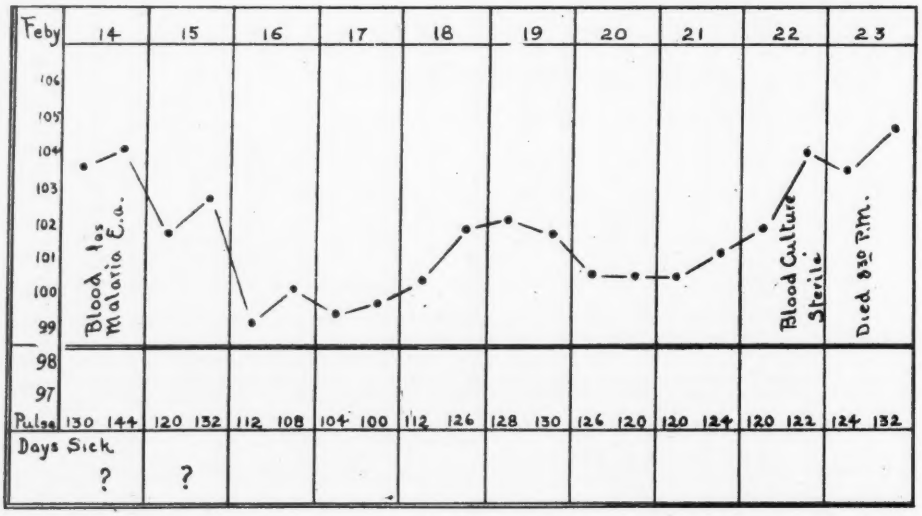

Chart 4.—C. G. Case. Malaria Fever Primary. Nephritis Secondary. Note second rise of fever as Nephritis Develops.

It will be seen from these reports that these fevers are not malaria. From the mere fact that parasites were present in some of them, and death the ultimate end, with high temperature and coma, it does not follow that malarial infection must be the cause. I have had a large number of deaths from malaria—all of them verified at autopsy—and an excessively high temperature has not been a marked feature. Periodicity has been marked, and in spite of the fact that parasites of all ages were present in the blood. I have one chart of death from malaria, recording a temperature from seven to eight per cent of all typhoid fever in malarial climates. In a recent work on typhoid fever,[4] by blood cultures, I have been able to show that the mild form does exist, and in the proportion of fully 30 per cent of all cases. In this mild typhoid fever, the febrile course lasts from eight days to two weeks, with striking quotidian features, and practically no marked symptoms (see charts Nos. 2 and 3). Then given a fever, indefinite in its symptoms, of short duration, with occasional malarial infection present, and a quotidian temperature, the natural conclu-

sion would be atypical malaria, rather than atypical typhoid fever. Thus mild typhoid fever has been studied as malaria time out of mind, and is largely responsible for the belief that certain malarias respond only gradually to the treatment by quinine.

The symptoms that typhoid fever and malaria have in common are: occasionally the pointed tongue, nearly always enlarged spleen, and constantly quotidian and subquotidian temperature. Otherwise, they are widely different. In mild typhoid fever there is moderate headache, and it is usually frontal, or to one side. Some weakness is complained of, but no other pain. There remains a moderate desire for food, and the patient prefers to be up and around most of the day. In malaria, while it is true the height of the temperature is no criterion to the gravity of the infection, it remains the rule, that with a fever above 101 in acute malaria, we have a rather sick patient. He complains of severe headache, and pain in the neck near the junction of the cerebellum. Pain in the "small of the back," pain in the calves of legs, and weakness in the knees. More or less vomiting is present, and always a perfect willingness to get to bed during the paroxysm. Where these two infections are present in the same individual, quinine may at first reduce the temperature, or it may not. If it does reduce the temperature, it will rise again when the malaria subsides and typhoid infection gains the ascendency. In simple malaria quinine will always make a marked impression on the temperature in forty-eight hours.

INCIPIENT TUBERCULOSIS.

In incipient tuberculosis the temperature curve, the chilliness, the fever and the sweats, the short duration in the course of the recurrent attacks, with practically no physical findings, make the symptoms almost identical with malaria. Now comes the presence of malarial infection in tuberculosis to add to our confusion. I have no figures to show how large a percentage there may be of malarial infection along with tuberculosis. It is though large, and I have no doubt that all tuberculous patients who live in malarial climates have had, at some time or other, in the course of

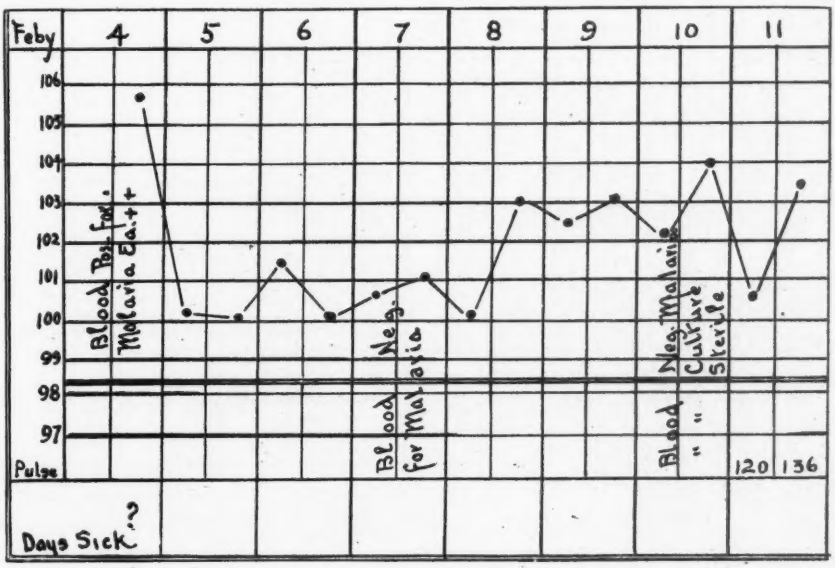

Chart 5.—Case J. W. Malaria Fever Primary. Nephritis Secondary. Note second rise of Fever as Nephritis develops.

their illness, malaria, more or less severe. These patients never fail to come to us with the statement that they have had malaria a number of times. Some physician has diagnosed it malaria, or if not, he has supinely accepted the patient's own diagnosis. Thus you see how these cases have been studied as malaria, and often diagnosed as such.

To differentiate malaria and tuberculosis the most important point to appreciate is the fact that the two infections often occur in the same patient, and to never rest content with a diagnosis based upon the blood findings alone. Physical findings, together with the tuberculin tests, will now serve to clear the diagnosis.

LIVER ABSCESS AND DEEP-SEATED SUPPURATIONS.

Pain is not often a marked symptom in these conditions. Irregular and recurrent fever, rising to 100 or to 101 in the afternoon, with progressive loss of health, being the most marked feature. This is especially so in liver abscess. Most of these patients have had attacks of malaria, and usually come to the physician for treatment, and not for diagnosis. His symptoms are vague, and he looks upon his case as chronic malaria, and expects you to do the same. You are likely to do so, especially if you hold to the old teaching or believe that certain malarias are resistant to quinine. With fever rising no higher than 101 or 102 as a maximum, quinine will control it in from thirty-six to forty-eight hours. If it does not do so, look upon this fever with suspicion. Blood examination will prove negative for malaria parasites. Leucocytosis will be noted, the count varying from 12,000 to 20,000 or over. A differential count will show the polynuclears to be eighty per cent or above. This will serve to point the direction of the diagnosis.

I wish to digress a little here to make some general statements on the effects of inflammatory leucocytosis on the malarial parasite. In the latter part of 1905 I first noticed in blood examinations, in cases of pneumonia, that after leucocytosis became marked, malarial parasites were always absent from the blood. Extending this observation over other inflammations, I found the same thing true in all of them. As I have previously remarked, all workers in fresh blood specimens are familiar with the aggressive phagocytic action of the white cells for the full grown malarial parasites. Therefore, on account of this phenomenon I can readily understand why, with an abnormal rise of the whites, say above 15,000, they soon clear the blood of the malarial invaders, and leave an open field for other pathogenic factors.

Then given a fever attended by leucocytosis

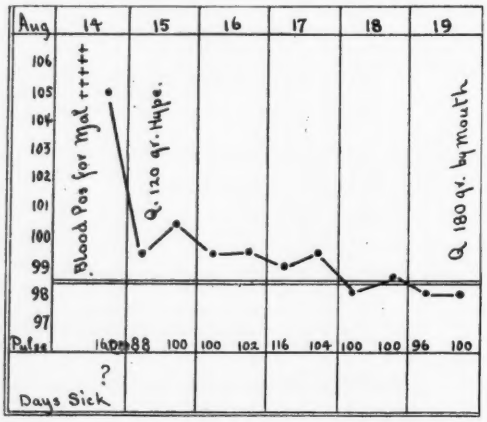

Chart 6.—Case D. B. Case 3. Malaria fever pernicious. Note malaria fever curve. No complications and on quinine.

and resisting quinine the idea of malaria should be no longer considered, and drenching with quinine should cease, and the real cause be sought for.

SO-CALLED CONSTITUTIONAL DISEASES.

We come now to a much more difficult class of diseases, a class that has certainly been charged as malaria, time and time again. And nothing short of the pathological diagnosis can convince the observer that he is dealing with anything other than malaria. These are cases where an initial attack of malaria has relighted some old underlying condition, or perhaps, has been the direct cause of a

supervening malady; in either event, the fever continues long after malaria, properly treated, has ceased to be a factor.

To take up these general conditions in detail would lead us too far afield. They would include old organic maladies that are at times dormant and at times active, such as nephritis, gastro-intertinal inflammations, old recurrent dysenteries, chronic bronchitis and its tendency towards broncho-pneumonia. All of them may be aroused to acute activity by malarial infection, and they are often the direct cause of death. When any of the above troubles are relighted by malarial infection the picture in the beginning is one of frank malaria. Under treatment there is at first usually amelioration of symptoms, and generally a marked fall of temperature; at this stage a change for the worse takes place. It may be gradual, or it may be sudden. There may now be a long, and tedious illness, or end in death. To illustrate this I show charts Nos. 4 and 5. Both of these patients went to autopsy, and no malaria organisms were found, although quite a heavy infection was present on admission. Pathological diagnosis:[3] Nephritis and ilio-colitis, nephritis and broncho-pneumonia, respectively.

The lesson to be learned from these cases is when treating an initial attack of malaria, and quinine has been given in sufficient quantties to control the temperature or make a very decided impression upon it, and at this stage the fever begins to rise again, all treatment remaining the same, the second rise of fever is not due to malaria. If quinine will control in the beginning, it must follow that it will hold any exascerbation in check, so long as all conditions remain the same.

"CLINICAL MALARIA."

In a certain number of mild malarial infections, in others more severe where quinine has been given prior to examination, it is at times quite difficult to discover the parasite. The diagnosis is then based on the therapeutic test, and noted as "clinical malaria." Under this head the number of diseases that may be diagnosed as malaria depends on the variable ideas, and indifference—I ought to say "confident ignorance"—of the diagnostician.

The following table will show clearly the fallacy of this method of diagnosis. I take five hundred cases positive for parasites,[5] and five hundred cases with no parasites found.[6] The one thousand cases were of all classes and of all colors, and came into the hospital along together, getting quinine, 30 grains a day in solution, under exactly the same conditions, except the American patients.

CASES WITH FEVER.

No Parasites.		*Estivo-Autumnal Parasites-Positive.*	
8 days and over	7	8 days and over	0
7 to 8 days	15	7 to 8 days	7
5 to 6 days	63	5 to 6 days	33
3 to 4 days	200	3 to 4 days	214
1 to 2 days	215	1 to 2 days	233

CASES WITH NO FEVER.

	0		13

This comparative table shows the fallacy of attempting a diagnosis on the symptom of quotidian fever, and moreover the wide latitude that will be taken by the diagnostician. The overplus in time of the "clinical" cases as compared with the cases with parasites are forty-five. Six of the seven positive cases, with fever seven to eight days, were complicated with several different diseases, such as "ascites," dysentery, uncinariasis, etc. And I must add that all the white Americans in these tables were taking their quinine usually twenty grains a day in capsules or tablets. And this, no doubt, has lengthened the total of days considerably. The results to be expected from quinine in capsules or tablets in a stomach upset by acute malaria as compared with quinine in solution needs no comment.

Four hundred and fifteen of these "clinical" cases were certainly malaria. The remainder may be anything.

This shows then that one blood examination, however carefully made, is not sufficient to pass as final in malaria blood work. It seems reasonable to me that in a moderate malarial infection there may be a time, after sporulation is complete and before the young forms

re-enter the blood cells, when it would be quite impossible to discover anything. On this hypothesis then the patient's blood should be examined at three different periods in a day before declaring it negative.

I cannot accept the theory that malaria parasites can accumulate for a time in the blood of the viscera and be absent from the peripheral circulation; they live in the blood cells and the blood serum, and must move impartially and indifferently in obedience to the flow of this fluid; they cannot, therefore, be in any organ in larger numbers than another, except that the organ has a greater physiological supply of blood. For instance, the small spleen, with its enormous blood supply.

QUININE IN MALARIA.

Quinine is an absolute specific in malaria, and Manson[1] well says, "When you fail to cure by quinine a case of supposed malaria, it is not the drug that is at fault; it is the diagnosis. * * * Quinine, therefore, is not only of value in treatment, but also for diagnosis. Any fever which persists unmodified after forty-eight hours dosing with quinine, is not malaria fever."

Quinine should always be given in solution, hypodermically, or intravenously, with the patient at perfect rest, if death is impending or if the diagnosis depends upon the therapeutic test. Under these circumstances, quinine will completely control within five days any malaria fever amenable to treatment, and with no complications. Moreover, it will eliminate all parasites from all organs, if continued over a reasonable length of time, say two weeks, if patient is kept under proper control. I shall illustrate this by report of cases.

Case 3, Chart 6—D. B., admitted August 14, 1908. Unconscious, repeated convlusions, vomiting, hiccough almost continual. Physical examination: eyes staring and not jaundiced; tongue, broad and coated; all organs negative, except spleen, palpable. Blood examination; hemaglobin, fifty per cent. Malaria parasites positive, large numbers, and of all ages and crescents. Urine specific gravity 1015, granular casts, albumen trace. Treatment, quinine by hypo, 120 grains in twenty-four hours. Afterwards, quinine by mouth, forty-five grains daily. Recovery complete.

Case 4 —J. J., admitted July 9, 1908. Died July 16. First illness since arrival in country two month ago. Prior history indefinite. Sick five days before admission, with fever, headache and vomiting. Physical examination, old facial paralysis, right side, otherwise, negative, except spleen, palpable, arteries sclerotic. Mental condition, mildly irrational, sometimes getting out of bed, wandering aimlessly about the wards. Passing urine on the floor, or involuntarily in bed. Urine, specific gravity, 1028. Casts negative, albumen trace. July 12, sp. gr. 1030, hyalin and granular casts, albumen heavy. Blood July 9 positive for malaria parasites, large numbers, all ages, pigmented parasites and crescents. July 10, positive for large number of young forms, July 12, one parasite found on careful examination. Treatment, quinine, forty-five grains daily. Total amount taken, 335 grains.

Pathological diagnosis:[3] Acute degenerative nephritis. Pigmentation of spleen and bone marrow. No parasites.

Case 5, Chart 4.—C. G., admitted February 14, 1908. Died February 23. History indefinite. Time sick not known. Physical examination, negative. Vomiting more or less continuously, both medicine and nourishment. Blood examination, positive for malaria parasites, infection heavy. February 22, blood culture sterile; urine, albumen heavy, hyalin and granular casts. Treatment, quinine by hypo, February 14 and 15, 60 grains. February 16 to 23, by mouth, 45 grains daily. Total amount, 420 grains. Pathological diagnosis:[3] Acute nephritis and terminal bronchopneumonia. No parasites.

Case 6, Chart 5.—J. W., admitted February 4, 1908. Died February 11. History and physical examination, record lost. Blood examination; positive for malaria parasites. Infection heavy. February 2, negative for parasites. February 10, negative for parasites.

Blood culture, February 10, sterile. February 11, blood negative for malaria. Treatment, quinine by mouth, 30 grains daily. Total amount, 250 grains. Pathological diagnosis: Nephritis and ilio-colitis. No parasites.

Case 7.—C. B., admitted July 12, 1908. Died July 22. Sick ten days before admission with headache, fever, vomiting and chills. Mental condition clear, extremely weak and occasional vomiting. Physical examination; bronchitis posterior; spleen, tender. Blood examination, positive for malaria parasites, all ages. Urine, sp. gr. 1020. Casts, negative; albumen, heavy. Treatment, quinine by mouth, 30 grains daily. Total amount, 320 grains. Pathological diagnosis: Acute degenerative nephritis. Parasites in moderate numbers found at autopsy.

I could multiply the number of cases indefinitely, which had malarial infection on admission, and which died of intercurrent diseases or infections, to show the effect of quinine in the elimination of malaria parasites. Case 7, with parasites after ten days, on full doses of quinine, is a rare exception, however, the number found was so small that the malaria was not considered by the pathologist to be a causative factor of the death, but was simply noted, along with such other findings, as pigmentation, edema of the brain, etc.

As I have reported several acute nephrites after acute malarial infections, the question will arise, what part has malarial infection in the cause of nephritis? I do not know. It will be seen that the malarial infections reported here were probably primary. Most of the patients were from Barbadoes, and there is said to be no malaria there. I was trying to work out this question is why I happened to have this excess of nephritic cases to report. Different observers find in malarial cases evidence of kidney disturbance in from 47 to 58 per cent. In two hundred cases, tested by myself, I found evidence of nephritis in 42 per cent. Following this subject further, I analyzed the autopsy notes on forty deaths from malaria and hemaglobinuria, with reference to the kidney findings, with the following results: Acute cloudy swelling, 55 per cent; kidneys, normal, 25 per cent; acute degenerative, 15 per cent; chronic diffuse nephritis, 2:50 per cent; acute (one kidney) and chronic diffuse nephritis (one kidney) 2.50 per cent.

CONCLUSION.

Malaria is an extremely simple disease, and has no exceptions in its course, unless complications are present. And quinine given with patient at perfect rest will control all symptoms within five days, if the attack is at all amenable to treatment; if not amenable to treatment, death will be so prompt that there will be no time to hestitate over diagnosis.

The most important point to remember in the study of malaria is the large number of infections that may be present along with an acute malarial infection. A lack of the knowledge of this fact, no doubt, accounts for the confusion in our ideas with regard to the course of malaria, and its non-amenability, in exceptional instances, to treatment.

Finding malarial parasites in the blood is not the end of the diagnosis, but just the beginning.

When quinine is given properly and fails to have a marked effect upon the fever in forty-eight to sixty hours, although parasites may be present in the blood, there is some complication; and when in an acute malarial infection the fever is once reduced by quinine, and there is again a rise of fever, all treatment remaining the same, the second rise is not due to malarial infection, but to some underlying condition aroused to activity, or to an intercurrent infection manifesting itself late in the malarial attack.

Diagnosing a fever that persists over five days in spite of quinine, as 'clinical malaria," is not justifiable.

Leucocytoses from inflammatory diseases are inimicable to the development of the malarial parasite. In the presence of a marked leucocytosis, the idea of malarial infection should be abandoned, and search made for the cause.

When we are in malarial climates, if we will but bear these few facts constantly in our minds, and govern ourselves accordingly, we shall be the means of great comfort to our patients; the means of preventing unnecessary loss of life by too long neglect of tuberculosis, deep-seated suppuration, and often sepsis; and finally, be the means of preventing the spread of useless and unnecessary epidemics.

Appendix: January, 1909, Report Department of Health. C. Z.

BOARD OF HEALTH LABORATORY, ANCON, C. Z.

Observations have been made on the rate of decrease of the sexual forms of malaria parasites in patient's blood as influenced by quinine and rest in hospital, and it has been determined that the sexual or transmitting forms of the parasite may be reduced by quinine and rest to a number insufficient to infect a susceptible Anopheles mosquito. In most cases this can be accomplished with quinine—10 grains three times a day—within ten days.

(8) Research by Dr. Samuel T. Darling, Chief of Lab.

[1]Tropical Diseases, 4th edition, Manson.

[2]Relapsing Fever, report by Dr. Walter V. Brem.

[3]Atypical Typhoid Fever, *Journal A. M. A.*, February 22, 1907.

[5]Lane Lectures on Tropical Diseases, 1905, San Francisco—Manson.

[6]Clinical Malaria, Analysis 500 Cases, Dr. Nelson D. Brayton.

[3]Pathological Records, Ancon Hospital, 1908.

[4]Atypical Typhoid Fever, Result of Blood Cultures, *Journal A. M. A.*, April 3, 1909.

ETIOLOGY AND TREATMENT OF DIPHTHERIA

BY O. N. BRYAN, M.D., NASHVILLE, TENN.

The true cause of diphtheria was made knows by Klebs in 1883, and in 1884 Loeffler isolated and cultivated the bacilli, hence the name, Klebs-Loeffler bacillus, or bacillus diphtheriae. This bacillus can be demonstrated by staining the specimen with the ordinary aniline dyes, but the staining is more satisfactorily done by Loeffler's Alkaline Methylene Blue. It can be recognized with the microscope by its characteristic appearance of clubbed ends with clear spaces in the body of the bacillus. Cultures may be made which are quite characteristic. Other micro-organisms commonly found while searching for the Klebs-Loeffler are staphlococci, strepococci, and pneumoccoci; sometimes the colon bacilli are also found.

Among the predisposing causes must be mentioned uncleanliness of the mouth and teeth, as well as enlarged tonsils, adenoids, and any chronic inflammatory condition of the upper air passages. This disease usually occurs in endemic form, but may become epidemic, especially during the winter months. Sporadic cases are frequently seen, probably due to the patient coming in contact with some clothing or some other article that has previously been around a diphtheritic patient. It is highly contagious and may be contracted by direct contact with a person having the disease, or from the secretions of the nose or throat of a person that has recently had the disease, or by some article that has been in contact with the patient and become infected, as clothing, handkerchief and pet animals. A very frequent source of spread is through patients that have had diphtheria and the bacilli remain in the throat to be scattered as the infected patient comes in contact with others. These are known as "bacilli carriers." Golay reports a case where the bacilli were constantly present in the throat of an individual for 362 days, during which time there were three acute attacks. The bacilli may lie dormant in the throat of a healthy person for weeks or even months without producing any symptoms or signs, only to be kindled up by some acute inflammation. According to statistics most authors have found the bacilli to remain in the throat for 22 or 23 days after the disappearance of the membrane, and even then they should not be released from quarantine until at least two bacteriological examinations have proved negative. If these examinations cannot be made, then a good rule is to keep the patient under quarantine for at least four weeks.

Another source of spread of this disease is by nasal discharges, in very mild cases where no bacteriological examinations have been made and the patient is not suffering from any constitutional symptoms, or these symptoms may be so mild that they will not confine the patient to the room. This is a sourec of great danger to the public. This was recognized even before bacteriological methods were introduced, and led the older physician to look on a child, with an irritating discharge from the nose, as a source of great danger.

Meikle points out the facts that the bacilli remain in the throat much longer in the winter and fall than in the spring and summer. The average was 22.84 days for December and 12.43 for March. The sex has no influence, but it does persist longer the younger the individual. The presence of enlarged and ragged tonsils favor the persistence.

The bacilli are belieevd to enter the throat or nose mainly through inhalation. There is a diagram in *Progressive Medicine* (Vol. II, No. 1) that shows very clearly how diphtheria is distributed by means of milk. This milk being brought in contact with susceptible mucous membranes by drinking it.

The physician and nurse are in constant

danger of contracting diphtheria themselves and distributing it to the public, if every precaution is not taken. This may be avoided to a certain extent, acording to Tyson, by caution in their services, as keeping the mouth closed when near the patient, carefully cleansing the hands after contact and examining the throat through a plate of clear glass. The germs may remain on toys of children for many months, especially if allowed to remain in some dark place.

It is more prevalent in cities because of the crowded districts, bad hygiene and lowered resistance from lack of fresh air, and by coming in contact with more people are more likely to become infected by one of the "bacilli carriers."

Frequently there is an exudate found on the surface of the wound of tonsillectomy and adenectomy about the second or third day that very much resembles diphtheritic membrane, and in fact some cases have been reported in which the infection of diphtheria took place on these raw surfaces. The bacilli diphtheria may have been present in the throat at the time of operation or gained entrance during or after the operation, only to find a fertile field to work in. This membrane may be streptococcic, but to be sure cultures should be made for the Klebs-Loeffler bacillus.

TREATMENT.

If all diphtheritic patients could be seen at the very beginning of the trouble, and diagnosed diphtheria, then a sufficient amount of anti-toxin administered, there would remain very little to be said relative to the treatment. Unfortunately this cannot be done in every case, therefore it is necessary to outline a treatment.

Prophylaxis should be carried out with every care. The patient should be isolated in a room without unnecessary fixtures, rugs, etc. Any doubtful cases that may be on hand, especially those with sore throat or bad cold, should be isolated until the nature of the trouble is determined. Every one that has been closely associated with the case, during its development, should receive a prophylactic dose of antitoxin, varying from 250 to 2,000 units, according to the age. The physician and nurse in charge of the case should use every precaution; the physician using a gown or rubber coat during his visits and bathing his face and hands in a bichloride of mercury solution before leaving the house. Another prophylactic measure that should be resorted to is the removal of all enlarged tonsils and adenoids, in order to render them less susceptible to this disease as well as other diseases. This should not be advised to take place at an early date in those who have recently been expoesd to a case of diphtheria.

Rest is one of the most essential features in the general management of this disease and the family should be told from the beginning that the patient will have to remain in bed for three or four weeks. In cases where the heart is weak and irregular, rest should be obtained by small doses of morphia. The room should be kept at an even temperature and moist, especially in the laryngeal type. The diet should be liquid and nutritious, using every means possible to sustain the vitality of the patient; the liquids best suited are milk, beef juice and egg albumen. Holt says "infants with diphtheria should be fed the breast milk from bottle on account of the liability of transferring the disease to the mothers while nursing." Brandy or strychnine should be given in cases that demand stimulation, and in cases where the heart is weak and irregular give caffiene or digitalis with strychnine. The patient should be kept in bed three or four weeks, according to the severity of the attack, and we should always remember that the average time for the bacilli to persist in the throat is from 22 to 23 days after the disappearance of the membrane, and they are very much more likely to persist longer in those cases with enlarged and ragged tonsils.

Internal medication. The indications in this are to maintain the strength of the patient, which should be done, as far as possible, by good nutritious diet. Of the medicines in

use bichloride of mercury in small doses, with tincture of chloride of iron and potassium chlorate seem to be the drugs mostly used. Others use calomel instead of bichloride. These remedies are supposed to have the effect of loosning the membrane. Some claim that potassium chlorate should not be used on account of irritating the kidneys and causing nephritis. Quinine is claimed to act very well in some cases, the dose being 10 to 24 grains in twenty-four hours. It is doubtful whether any of these remedies have any value except when used in conjunction with the anti-toxin; then they may be of some value. In laryngeal cases when the membrane loosens and is flapping in the throat then it is well to give emetics that they may throw the membrane off in vomiting. When the temperature is high it is best controlled by baths; never giving anti-pyretics on account of their depressing action on the heart, which is already in a weakened condition from the toxins.

The local treatment is not carried out so extensively now as it was before antitoxin was used. It should still be carried out, having in mind cleanliness and prevention of some of the membrane being aspirated into the lung and causing pneumonia. The cleanliness is best obtained by means of swabs, sprays or irrigation. There are many solutions in use for this, but the favorite ones seem to be bichloride of mercury (1:1000) and hydrogen dioxid (1:10). The hydrogen dioxid is preferable in some cases because it disintegrates the membrane.

After all that has been said relative to prophylaxis, general and local treatment, and internal medication, we are now able to discuss the specific or antitoxin treatment. The two main points I wish to emphasize in this treatment are: (1) Give the antitoxin early. (2) Give large doses. Dr. Ker in the *London Practitioner* says the results he expects from administering antitoxin are (1) "Limit the spread of the membrane; (2) break up the false membrane, and (3) neutralize the toxins."

As an average dose he gives 8,000 units and in cases where it is only diagnosed by bacteriological examinations he gives 1,500 units as a minimum dose.

The importance of giving the antitoxin early is clearly shown by a report of the Pennsylvania State Board of Health (1907). Out of 3,463 receiving the antitoxin on the first day there was a death rate or 4.59 per cent. Out of the 1,139 receiving the antitoxin on the second day there was a death rate of 8.77 per cent. Out of 403 receiving the antitoxin on the third day there was death rate of 13.64 per cent. Out of 136 receiving the antitoxin on the fourth day there was a death rate of 23.52 per cent. This shows clearly the increase in mortality the later the antitoxin is given.

The amount of antitoxin administered according to French must be "sufficient to produce the characteristic shriveling of the membrane, corection of the fetid odor, and improvement of the general condition." The severity of the case must be the guide as to the amount given, and remember that it is much safer to give large doses than to risk small ones. French says, "3,000 to 5,000 should be given at the outset in cases with laryngeal stenosis, and in most nasal cases and repeated at intervals of six to twelve hours until the characteristic results are obtained, or until 50,000 to 70,000 units have been given."

The serum is given in the subcutaneous cellular tissue of the abdomen, loin, shoulder or gluteal regions after thoroughly cleansing the part.

Some men are now recommending the intravenous injection of the antitoxin in very severe cases, when seen late. This way the antitoxin is placed directly in contact with the toxin circulating in the blood, while if injected

subcutaneously it may take several hours to be absorbed and the patient die before it has effect.

Some additional treatment that is necessary in larnygeal diphtheria is moist inhalations, and if the case grows so bad as to cause very much obstruction and distress intubation should be done and antitoxin given at once in heroic doses. In other cases where intubation cannot be done or in cases where there is very little result from intubation then tracheotomy must be resorted to.

THE PROBLEM OF THE NEUROTIC

BY W. H. WITT, M.D., NASHVILLE, TENN.

It is the custom for presidential and similar addresses to consist largely of taking stock and marking the steps of progress. In more or less accordance with such habit, I take the liberty of calling your attention to the neurotic, the one patient who belongs to all of us—general practitioner, surgeon and specialist alike. It might not be far wrong to say that more people in these modern times need something done for their unstable and erratic nervous systems than for any one organic disease, and yet I feel very sure that we are falling far short of treating them to the best advantage, both for their own good and for the honor of our profession. For it is out of the profession's capital failure to give such patients what they want and need, and what they have a right to have that comes the enormous success of the many faith cures, such as Christian Science, Dowieism, New Thought, etc. The susceptible and uninformed layman can see no difference between the disordered function that faith or suggestion can cure, and the organic or infectious process over which such measures have no possible control. A cure is to him a cure, and the facts of cures by Christian Science and similar methods are just as well authenticated as any that medicine can claim. It is our fault that these things have secured such vogue. If our medical schools had taught the influence of the mind on the functions of the body, the lasting and evil effect of fixed morbid ideas, with one-tenth the zeal they have taught pathology, the Christian Science temple of Boston would not stand there today a monument to our neglect of a very proper field for our instruction and our practice. It is not enough to say that we always told these patients that their troubles were simply nervous. Nervous people suffer as genuinely as anybody, and the fact that one is bed-ridden this morning and goes to a tea this afternoon may tax our patience and rob them of our sympathy, but it does not disprove the reality of their symptom,s whether these be pain, mental depression, sense of utter exhaustion, or what not. Where we have erred is in not trying to get some understanding of the scientific principle at the basis of such complaints, for all things have a cause, and these sometimes ridiculous and inconsistent sufferers come to their condition by way of cause and effect.

I believe that in the near future these forbidding phenomena are going to be the subjects of successful study and more or less satisfactory cure by really scientific methods, and I thought it might not be out of place to call your attention to some of the general as well as particular features of the subject. It is not necessary to speak at any great length in the effort to identify these patients to you. Everybody that does a general practice, and all the surgeons and nervous specialists know them only too well. They are men, women and children. Men and children constitute only a minority of the cases, the majority being women. They are, in most cases, the children of neurotic or at least nervous parents; only too often their domestic and school relations and experiences have been such as intensify the instability of the nervous system, and as a result they grow up to occupy a very definite place in one of three groups—excluding for our purpose any of so-called unsound mind. They are, first, simply nervous people their nervousness manifesting itself in many ways; or they are more or less pronounced neurasthenics, or, thirdly, they are hysterics of mild or grave type. The simply nervous patient may be a joy and a comfort to a physician, compared with the neurasthenic and the hysteric. They recognize fully their trou-

ble, and learn to try to correct their nervousness, realizing their tendency to take life too seriously, to attach undue importance to a hundred little occurrences that should give them no concern. The nervous man or woman may be among our most satisfactory patients, accepting our services gladly, not expecting too much of us, and cheerfully giving us credit for being a great comfort to himself and his family. They may come from time to time with complaints about certain organs, but they are usually easily reassured and are already half convinced themselves that their trouble is not serious. Such people are very often the most efficient and capable people of a community, doing an amount of work that is astonishing, and bearing their share of the burdens of family, church or state. They are solicitous, often unnecessarily so, about their family's health, or perhaps their own health, but not with a morbid and unreasonable insistence. All of us can satisfy these patients by a little tact and sympathy, never scolding, and never seeming inattentive to their wishes. Moreover, we usually understand them; that is, we make a proper diagnosis and our treatment is directed on rational lines. The patient, in fact, usually makes a diagnosis for us. His symptoms are only temporary, they grow directly out of some trifling circumstance, and he realizes that it is his nervousness that magnifies them.

The next type, the neurasthenic, is something very different. He may not be nervous in the usual sense of that word—often is not. On the other hand, he may appear to be stolid and lethargic and appear to have no nerves. His great symptom is incapacity; incapacity of mind and body. Thinking tires him, reading tires him, listening tires him, walking or playing cards tires him; being alone annoys him, being in a crowd annoys him; his digestion is poor or he thinks it is, so he eats little. He has headache, backache. He does not sleep. He is constipated.

Does he come complaining of all these things? He may, if he has studied himself pretty well. But he may not exhibit all these evidences of nervous incapacity, unless his case is very marked. More often the symptoms point to impaired function of certain organs, and the patient complains of headaches and spinal pains, or his chief complaint is that he cannot sleep, or of loss of appetite and indigestion, with constipation. If a woman, she has ovarian disease or mucous colitis and tender appendix. Backache you can always depend on. You feel for the right kidney with great confidence, and perhaps her stomach lies low. Now, what does the unsuspecting physician do? He looks at his patient under high power, and only sees those organs thrust under his gaze. So he proceeds to treat the stomach with douchings and diets and drugs, probably accepts the patient's statement that he has no appetite as a guide to light diet, when what the patient needs is a full diet to restore bodily vigor—nervous vigor following the increase in weight—which it will do, in the great majority of cases. The headaches we may consider toxic, and put a patient through all sorts of restricted diet. Then there comes electricity for the spine, tampons for the ovaries, bromides for sleeplessness, valerian and three bromides for the nervousness. We make a vaginal examination; the patient jumps, and we frown, and say what a tender and sensitive ovary! Possibly, it has a Graafian Follicle in it! Then some more tampons, and as last resort, the surgeon who resects the poor little ovary, throws away the horrid cyst. Does the patient improve? Yes, for a while. Haven't we told her she would, and will she not be accommodating? And has she not had rest and douches? Has she not been away from home, and the worries incident to home life, and given her racked nervous system time to recuperate? Yes, she is better, for awhile. But she soon comes back; possibly you have stitched up the kidney and removed the appendix, but then you can work freely on the mumous colitis, and give her electricity for her spine. Finally, in an inspired moment, you

tell her that you believe many of her symptoms are nervous; that she suffered so long from that old kidney and ovarian trouble that her nervous system has become impoverished, and you think she should go to some health resort. The neurotic's appendix may need removing, and she may have a cyst on the ovary and need a dilatation, but to do these things and leave her to think she may expect health is not fair. In fact, I believe that only after the most thorough analysis of such a case, and the clear establishment of cause, should we advise surgery at all. In most of the cases in which there have been four or five operations at one sitting, you can almost feel assured that some gross error has been committed. They will most assuredly come and plague you again. The surgeon that regards tenderness as a sign of inflammation is going to have to eat a good deal of crow or stretch his imagination in detecting evidences of inflammation when he holds the specimen in his hands. How many general practitioners and specialists are daily treating affections of the stomach, the heart, pelvic organs, spine and to a less degree many other structures without knowing that those organs are, to a large extent, mere excuses, mere easy modes of expressing the functional weakness not originally connected with those organs at all—merely something to lay a complaint on—when the real trouble is in the mind. While some physicians are fully convinced of the nature of the underlying trouble, and fully advised of the processes of mind by which errors are believed by the patient to exist in certain organs, and also that those errors will not be properly corrected, except through the nervous system, still we have not the courage to be frank with such patients and lay before them the real nature of the trouble, including the steps and the conditions of satisfactory cure. It is not an uncommon thing for a patient suffering with chronic disturbance of some of his functions to declare that he believes the whole thing is nervous. But such frankness is not always exhibited by the patient. Far oftener we are warned that we must not say that such and such disorder is all nervous. "Say anything you please, doctor, but don't say that I am hysterical or nervous." Various agencies are at work to prevail upon us to make a diagnosis of organic disease, when only functional disorder is present. Once in a while we are very positive a case is one of hysteria, when the result proves we were woefully mistaken. This is one reason. Another is the fear of offending a patient by saying she is nervous. Indeed, the diagnosis of functional disturbance is a risky one to make, and should only come after thorough examination, and as thorough study of the individuality of the patient as possible. We all know that the dividing line between functional and organic disease of the stomach, for instance, is shadowy, and we hesitate, in the absence of perfectly definite symptoms, to make one or the other diagnosis. It is hazardous to tell a patient to ignore a spinal pain when that pain might be due to tumor or other organic cause. It is hazardous to tell a dyspeptic to ignore selections of diet and eat everything, when the symptoms might be due to an unobtrusive type of ulcer. It is obvious that in such dilemma the need of positive diagnosis is imperative, an end that, in many cases, the refinements of modern diagnosis have not enabled us to reach. In fact, I think I might safely say that a diagnosis of disease in neurotics is as often overlooked by the modernist who studies organs and their secretions as by the older school of practitioners who studied people. The point is that we must study both the organs and the patients who carry those organs about with them. The wisest, probably not the most successful, physician is the one that can do both, and having made what he conceives to be a diagnosis, states the whole thing plainly to the patient. I am aware that there are some circumstances under which it is unwise to tell a patient the nature of his troubles, but in the type of patients under consideration I am not sure that we ought not to give up our present

habit—more or less universal amongst us, I being as guilty as most others—of hiding the true nature of these patients' troubles from them—and go at once with their full knowledge and co-operation to the root of the evil and restore by what means we can a soundness of mind and a self-control that should belong to every son and daughter of Adam. But one says you cannot get their co-operation. Occasionally that is true, but I believe only ocasionally. We have only to look about us and observe the popularity of the various mind cures, some with one feature and some with another, to see that people—especially this very class of people—are easily convinced of the unreality of their ailments, and are ready to take hold of any line of treatment that will lead them to health and relief. Of course as long as we tell a patient that she has ovarian neuralgia from congested or cystic ovaries, and give her tampons and viburnum, or wash her stomach for chronic catarrh, and tell her that headaches are reflex and backache ditto, and never tell her that all these symptoms are but the expression of a disordered or impoverished nervous system, we are falling just that far short of dealing with her as we should. Not that such treatment never does good; it often does. Such patients are susceptible; we can peck at the ovaries or stomach awhile, tell the patient how much the local condition has improved, and her receptive mind succumbs to our positive manner and the suggestion conveyed by our air of knowing it all, and the sky brightens, pains depart, they eat more, are more cheerful, and all goes well for awhile. But she soon turns up with a new ailment, equally functional. Another patient is not so fortunate; the attention once directed to some function by the physician, there it stays. He has said it is diseased, and diseased it must remain. The more treatment, the more pronounced the symptoms. I am as guilty as any one of such practices. Possibly I have been impressed more than some others with the error of making much of functional disturbances and hastening to their treatment, with not so much as a frank talk with the patient about the real cause of the whole trouble. But this impression has not given me the courage I ought to have. I still dally with the truth, and I still permit myself to accept what is often the patient's diagnosis, instead of my own, and against my better judgment institute lines of treatment that I am not proud to acknowledge. More than that, I yield my consent to surgical procedures of the ultimate value of which I am by no means assured. My hesitation comes of two things: First, my belief and hope that with time, suggestive treatment, with the aid of drugs and measures, change of surroundings, etc., my patient may be restored to complete or partial health; second, my conviction that as a psychotherapeutist, pure and simple, I should be a failure. I am not here speaking of that kind of psychotherapy that grows out of the patient's confidence in his doctor; out of the physician's assurance that this medicine will certainly help one sleep or aid digestion. We all are possessed of some such skill. The patient is relieved and never knows that he is the victim of suggestion. I refer to that higher type of psychotherapy that deals with a hysteric or neurasthenic, just as it would one with tonsillitis, explaining the whole disease, how it arises and how it takes different forms, how all symptoms are mental, or at least nervous, and how it is that they simulate so closely the symtoms of organic or serious disease. This kind of psychotherapy, to be successful, requires, I believe, especial skill—a skill that I think few of us have—myself least of all. And yet I believe it is what we should all aim at. It at least has the attribute of honesty and fair dealing with those who pay us for our time and effort, and who have a right to the truth.

Its successful practice requires a knowledge of human nature, its strength and its weakness; some knowledge of psychology; above all, patience and perseverance, an ardent faith in the value of the means being used. Prob-

ably we are going to have specialists in psychotherapy for the more intractable cases, and I think such will be the solution; when instead of the general practitioner sending his neurasthenic to the stomach specialist, or the gynecologist or appendecticist, or the heart specialist, he will send him where he belongs —to the psychotherapeutist. The chief trouble about this is that will reduce the sale of bromides, valerian, nux vomica, charcoal, viburnum, boroglyceride and stomach tubes. I do not intend to say that psychotherapy is not properly practiced, but I am sure one can almost count on his fingers the men in this country who practice it on the highest plane, that is by reasoning and persuasion with the patient, putting the burden of restoration on the patient himself. So-called mental healing is of great antiquity, and like the comets—a wave comes across the medical firmament at more or less calculable intervals, and takes different forms. As practiced, psychotherapy has had three accepted methods: (1) Hypnotism, (2) suggestion, (3) educational and persuasive measures. Hypnotism had its greatest wave of popularity many years ago, and like all new means of therapy, was expected to do wonders, and in a way it did do wonders, but as a means of giving permanent relief to neurotics it proved to be a failure, often intensifying the nervous state. It has now become largely discredited as a therapeutic measure. Simple suggestion, based on the idea that the great majority of people are open to suggestion, took the place of hypnosis, and has been much more successful in dissipating the morbid mental states forming such a prominent feature of many neurotics. Suggestion, isolation, with rest and forced feeding, followed by diverting occupation, have been popular and have done wonderful things for the class properly called neurasthenics, with certain psychic features.

In the last few years there has arisen a new school of psychic healers, represented in its purest and most scientific form by DuBois of Bern; less satisfactorily by Schofield, of England. It has had strong advocates in Paris and other large cities of Europe. Its truths and its practice have been appropriated in this country by Putnam, Prince, and many others. The keynote of this school of therapy is education followed by persuasion. An effort is made to enlighten the patient in the real nature of his case, explaining to him in detail how the mind influences the functions of the body, particularly the digestive organs, the heart and vaso-motor system and the nervous system. Separating the false from the true, the real from the imaginary, the patient comes to appreciate the unreasonableness of many of his symptoms, acquires hope and courage, believes he is going to get well, and when he reaches this point, the rest is more or less easy. It may take many conferences to bring patient and doctor to common ground, but in most cases it can be done.

DuBois says: "I have shown that in this educational influence exercised on the patients afflicted with the various functional troubles of the digestive apparatus, heart or respiratory system, there is always an element of suggestion. To arouse in the patient a conviction of cure is the fundamental indication. It is impossible for me some times to keep the patient from reaching this conviction by blind faith, but the fault must be imputed to the subject. Personally, I take care that my statements are rationally founded. I transmit to the patients only such convictions as are based on my psychological or physiological views. I try to make the patients follow the same paths, to explain, and to make him understand as clearly as possible the influence of mental representations on organic functions." As his language implies, DuBois brings to his aid only physiology and psychology, or, in one word, philosophy. He says there is no need of the religious element, though he interposes no objection to religious influence. He simply regards it as unnecessary, and as further limiting the beneficial effects, if one is not a believer. And perhaps a religious person who does not receive a cure may come to doubt

both God and man. This seems to be the correct view. It is not possible to go at any length into the practical application of DuBois' methods detailed in his book. What impresses one most favorably is the strictly scientific tone that pervades all he says and does. He believes fully in the wonderful effect of mind over bodily functions, and equally strongly he believes in the mind's power to cure practically all such disturbances. He is an enthusiast, and he may seem to claim some things that you and I would regard as doubtful, but one cannot help admire his straightforward way of dealing with his patients. He applies the treatment to the many types of simple nervousness, with their temporary functional disturbances; to hysteria in all of its manifestations; hysterical cases often requiring the most subtle psychic analysis—an analysis that I think would be practically impossible to one not especially gifted in psychological study; to neurasthenia in all its protean manifestations—somatic and mental, and lastly to the psychasthenics—bordering on the domain of the insane. DuBois seems never to doubt the value of mental therapy to cure mental ills. High frequency currents and static sparks have no place in his treatment. Stomach tubes and digestive ferments gather dust, but not the kind of dust they gather for you and me. Even laxatives and hypnotics he absolutely discards. Psychotherapy, pure and simple, for psychic ills; nothing mysterious; nothing hidden, even from the patient. Quite a rebuke to those of us that give blank hypos or bread pills, and in many other ways convey to our patients suggestions we have not the courage to be perfectly honest about.

Now, I would not have you think that I believe in not treating these patients at all by ordinary means. In my ignorance of psychotherapy, as practiced by masters, I have to resort to the usual means—sometimes even surgical means. I do believe, however, that we should quit putting the cart before the horse; be perfectly frank with these people, and tell them that their chief and underlying trouble is mental, and that our present effort is by indirect or direct eduactional means to restore the mind to something like the normal.

There is a very valid reason for the existence of sanatoria for the treatment of neurotics, and I know that some are much helped by their trips to popular health resorts. But I think they often make a narrow escape, for they come back sometimes reporting most absurd diagnoses. In too many cases the organic nature of their complaints is insisted on, and the relief they obtain is credited to the unusual skill in the application of medical or physical therapeutics. It is not because they have the best possible treatment, but because they secure bodily and mental rest and diversion. Their susceptible minds receive suggestions from new and pleasing personalities. They are told that "everybody gets well here." They are deluged with physical therapeutics from salt glows to beautiful sunsets, and they come away feeling better, and they are better. But how much permanent good is done? How much better grasp have they on themselves? Are they any more successful in the presence of some new functional disturbanec than formerly? I think not. In fact, I think they are often rather more egoistic and self-centered, considering the number of patent foods and special exercises they bring back with them upon which to build their hopes for future health. Sooner or later they are in your waiting-room. There is indeed a great field for sanatoria for neurotics, but the maximum good is only going to be done when the physicians in charge of these institutions learn that mental therapeutics must be on the square, and that other means, rest, overfeeding and various local treatments, must be strictly subsidiary to educational measures directed to the mind itself.

I am a firm believer in the future of psychotherapy conducted as hinted at here. But as I have resisted the temptation to see the millennium come by way of electricity, Wood-

bridge, creosote, soluble iodine, plycero-phosphates, proto-neclein or the X-rays, so I hope to keep steady in the boat and not see too much in this new measure. I am only too thoroughly convinced of the ineradicableness of many stigmata of the neurotic temperament. If we could give the child new parents, reconstruct his childhood and school-days, readjust his various social relationships, we might expect real cures. The best that most physicians can hope to do is by fair dealing, to have them see where they stand, then by cooperation, rather than sympathy or scolding, to bring them to a new power over their many weaknesses. The average practitioner's best results will continue in the future, as in the past, to be secured in simple nervousness, the milder neurasthenics and milder hysterics. I fully believe that a more thorough study of psychology and psychological analysis in our schools, resulting in a better appreciation of the how, and the why, and the genuineness of these patients' suffering will enable us all to deal more scientifically and more successfully with those milder cases just referred to, and to just that extent we shall deplete the ranks of the Eddyites. But we shall not be able to do without many of the measures already proven to be valuable, notably mental and bodily rest, occupation, diversion and wholesome ways of living—some being suitable to one case and some to another. These aids to cure are known to be of great value.

In the fully confirmed neurotic the means of recovery is often to be sought in a more or less complete readjustment of our patient's social relations, for out of taxing or annoying social relations comes much of the ill-health. It is apparent that any system of therapeutics that upbuilds or remodels the individual must either modify his relations to his friends and family, or at least modify his mental attitude toward them; possibly both. The individual body is limited by the skin—but the ego, the mentality, the conscious and subconscious self has no such material limitations. I think there may be a more or less strong suspicion that mental therapeutics is something new. The fact is there has always been some psychotherapy mixed up with medicine. It has often, however, been more or less based on superstition, and often closely related to religious beliefs. The practice, when not distinctly religious, has at least been empiric and frequently conducted by irregular and irresponsible cults. This has had a tendency to make scientific men skeptical about its value, and the best men in our profession have assumed a rather disdainful attitude toward it. The problem now before the medical world is to elevate psychotherapy to its proper place as a genuinely scientific procedure. The workings of the conscious and the subconscious mind, while obscure and forbidding, must be analyzed like all other phenomena, and I doubt not that in time order will come out of chaos. There is no fact in nature so high or so low that it may not properly be a subject for scientific inquiry. Lord Kelvin says: "Science is under bonds, by the eternal principle of honor, to look fearlessly into the face of every problem that is presented to her."

THE EMMANUEL MOVEMENT.

Nothing in the history of the effort to care for and heal the troubles of the neurotic has more interest just now than the so-called Emmanuel Movement, a practice of spiritual treatment at a church of that name in Boston under the supervision of Dr. Worcester and his associate. This application of the spiritual and the religious element in psychotherapy has spread to many cities in our country, and has been written about extensively, both in the medical and the lay press. Medical opinion has differed widely as to the ultimate value of such treatment. There can be no doubt that as Dr. Worcester conceived it, and I may say as he practices it now, his treatment is open to very few objections. His idea all along has been to draw a sharp distinction between functional and organic diseases, and for the most part take charge only of those patients who have been carefully examined

by a competent physician, and referred to him for psychic treatment. This plan, it appears, has not always been adhered to, and the Emmanuel practice has been criticized not only in some of its more vulnerable points, but many prominent physicians in Boston and elsewhere have disapproved of the movement *in toto*. Dr. Putnam, of Harvard, is quoted as considering the whole affair an injury to the progress of scientific medicine, especially neurology. "The crowd of untrained and unfitted clergymen," says he, "who at once jump into the role of medical men and preach and practice what they call psychotherapeutics, is going to do great harm, is an injury to the public welfare." Many other neurologists and internists in Boston are equally outspoken in disapproval. However,, some very prominent and conservative men, notably Drs. Cabot, Pratt and Goldthwaite, of Boston, have from the first approved of the general idea of permitting the minister to do what service he could to certain types of neurotics, and have consented to serve as a kind of advisory committee to the Emmanuel pastors. They hold that the religious sentiments and motives may well be utilized in arousing courage and hope, in subduing the morbid and egoistic, and substituting the cheerful and altruistic. The practice is now conducted under the following rules: (1) No person shall be received for treatment unless with the approval of and after having been thoroughly examined by his family physician, whose report of the examination shall be filed with the minister's records. (2) No patient shall be referred for diagnosis or treatment to any specialist or assistant save with the advice and consent of the patient's own physician. (3) All patients who are not under the care of a physician must choose one and put themselves under his care before they can receive instruction at the Emmanuel Church. The *British Medical Journal*, after discussing the Emmanuel Movement, takes somewhat adverse grounds, and says: "The gift, real or supposed, of healing the spirit is sometimes dangerous to the possessor, and experience has shown that it very easily leads him to look upon the soul's tenement of clay as an appanage of his spiritual kingdom." Personally, I have grave doubts of the advisability of surrendering to the laity the care of such a large class of patients, though I am well aware that at present there are relatively few medical men who have the power of psychological analysis, the tact and the temperament to successfully handle the more marked neurotics. It takes time and patience both in unlimited quantity. But it will be so easy for patient and lay healer to lose sight of their true relation to medicine; to magnify certain elements of the healing process, such as the personal or the religious, that the true scientific basis will be lost. There will result cults upon cults mostly based on some healer's methods, and the final outcome will be chaos and to the detriment of our profession and the public welfare. It is our solemn duty to codify, so to speak, and systematize on a rational basis the knowledge of the charlatan, the quack, the Eddyite, the Dowieite, and put that knowledge in a form that will appeal to the common sense of the public, to the end that the neurotic, who is ever with us, may come into a reasonable share of health and happiness.

EYE INJURIES AND THEIR IMMEDIATE ATTENTION*

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In a district depending upon industries of the character such as we do, where men handle high explosives as though play, where iron is king and coal the baron, injuries of all description are indeed common. I shall endeavor to speak of those met with most commonly in my special field of work.

The eye protected, as it is by the lids, those automatic shutters of our camera, frequently suffer many an injury that, if promptly attended and properly cared for, would save many a poor mortal from groping in darkness, and the State and community the burden of his and his family's support.

I shall begin with the lids and work inwards, giving those common injuries so often found.

The lids may be injured by punctured, incised, lacerated, contused wounds, by foreign bodies becoming imbedded in their structures or passing through, to be lodged in the orbital tissue or in the eye itself.

Horizontal cuts are most favorable for healing, doing so with practically no deformity or scar. Vertical and oblique ones call for accurate approximation to avoid deformity from which would follow an eversion or inversion of the lids. Where the tear duct is involved care must be taken to approximate the severed ends accurately, so as to give a free passageway for the tears, and this at times will demand all the ingenuity of the opthalmic surgeon.

Another common injury to the eyelids are of the character of contusions, resulting most commonly from the forcible impact of another individual's fist, causing immediate extravisation of blood into the cellular tissues, resulting in what is commonly known as "black-eye." This may take on the form of an ecchymosis or hematoma. We must be careful to differentiate an ecchymosis due to a fracture at the base of the skull. This does not appear immediately and works from before backwards into the tissues of the lid. The treatment for contused wounds consist of ice compressed immediately, then afterwards hot compresses of lead and opium or a solution of subacetate of lead, teaspoonful to a quart of hot water or tincture hamanelis. If a hematoma, it is best to incise an evacuate blood clot. If an abscess forms, open up and drain as in any other locality.

Burns of the lids are common. Those of the first and second degree rarely cause much deformity, but where the deeper tissues are involved, we must endeavor to avoid all adhesions, which would result in a deformity of the contour of the lid.

Foreign bodies, such as gunpowder and coal dust, can be picked out, removed with electric needle, though I have found—especially for powder and coal dust—that the use of hydrogen dioxide immediately, and afterwards, will clear up these marks.

Foreign bodies on or in the conjunctiva are the cause of most trouble of traumatic origin in this region. The common symptoms of same are those of pain, scratching photophobia, lacramation and blephorospasm. If situated in the lower cul de sac they are easily removed. Usually the tears will wash them away, or if not, the flushing with some bland solution will readily remove them unless imbedded firmly in the tissue. If in the upper fornix eversion of the lid, will readily show same, which can be easily removed with a cotton swab. Burns of this part of the eye are indeed serious, especially those resulting from chemical or molten metal. If acid is the cause of a burn, a 1 per cent solution of bicarbonate of soda or potassium bicarbonate will

*Read before Jefferson County Medical Society.

readily neutralize the acid, and some bland ointment can be then applied, such as vaseline, a 3 per cent solution of iodoform in castor oil or yellow oxide of mercury one grain to the dram of vaseline. If due to a hot metal, same should be immediately removed and treated as above. Burns of the eye caused by lime should be flushed immediately with cold water, thereby removing all particles of offending substance and relieving the heat formed by the oxide of calcium coming in contact with the tears. Holocain instilled in the eye will relieve pain, using ice compressed to control inflammation and one of the bland ointment above mentioned in the cul de sac. It is advisable to pass a probe into the fornices frequently to avoid adhesions. Coover & Black advise the use of the egg film over burn parts, thereby keeping the two raw surfaces separated. Gunpowder and coal dust are readily removed by the use of a 20 per cent solution of hydrogen dioxide rubbed gently into each powder burn, which will soften same, and then it may by removed by gentle picking.

The cornea, from its exposed position, is very liable to injury, especially the imbedding of a foreign body. Injuries due to heat and chemicals manifest as a rule the same symptoms, though more aggravated, as already mentioned in speaking of conjunctival injuries. The same treatment here is pursued with the addition of a weak solution of atropia.

Injuries of the cornea of the new-born are at times met with where instruments have been used, the eyelids and conjunctiva are also bruised. The resulting scar is usually oblique and disappears in the course of a few weeks.

Scratches of the cronea by the finger nails, pins or sharp edge of a paper are frequently met with and are indeed quite painful and at times may cause serious results, especially if infection gains entrance. Instil a weak solution of atropine sulphate after having cleansed the eye, and if very painful, a few minims of a weak solution f holocain or dionin, smoked glasses to protect the eyes from the glare, and if very painful it would be best to put on a light dressing for a day or two. Flying coal, bruising the cornea, has caused several eyes to be damaged in my experience. Denuded areas of the cornea which cannot be readily seen by either direct or oblique illumination, can be easily outlined with a few drops of a solution of fluorescin. We should always bear in mind the possibility of these corneal wounds becoming infected and the liability of infection spreading to the deeper structures. Deep wounds of the cornea will leave more or less scar, which as time passes will become fainter. I have found dionin in strength from 5 to 15 per cent, either in ointment or solution, a great aid in the removal of recent scars. Those wounds which penetrate the cornea are serious from the resulting loss of vitreous, protrusion o firis and lens, and from the possibility of infection being carried in. Give immediate relief by the use of cocaine or preferably holocain; cleanse with some mild antiseptic solution, instil atropia and apply a light compress dressing. If area is infected, destroy the infected region either with curette, actual cautery, carbolic acid followed by alcohol, or tincture of iodine. An application of a 10 or 20 per cent acetic acid to infected region gives good results. Of course, the eye should have been cocanized first. If the iris is prolapsed, same should be immediately clipped off. Another accident rather rare to the cornea is a hemorrhage into the layers of this tissue. This gradually will spread until the whole cornea is involved. Absorption usually takes place in from two to four weeks, leaving a pigmentation of the cornea.

Foreign bodies imbedded superficially and free from infection, if carefully removed, usually cause no permanent injury. If, however, they are infected, rapid destruction of the cornea tissue may follow. Foreign bodies are best seen by oblique illumination. At times they can only be made out by the use of a few drops of fluorescin. Cocanize the eye with a 1 or 2 per cent solution, waiting four or five minutes for the same to take effect, then with

a light cotton swab endeavor to remove the foreign substance. If firmly imbedded, a spud or cataract knife should be used to remove same; one should be very particular not to denude any more of the cornea than absolutely necessary.

Injuries to the iris and ciliary body are usually accompanied by some damage to the other parts of the eye. The tearing of the iris from ciliary body is not very rare. It is known as Iridodalysis, usually follows lacerated wounds and blows; sometimes occurs while performing operations due to the patient's resistance. It may be slight and hidden for the time being by hemorrhage or may involve the whole, causing complete separation from its ciliary attachments. Atropia should be instilled, protrusion through the cornea should be cut off (never replaced), eye bandaged and patient put to bed.

Copper is the most violent foreign body that can become imbedded in the iris, and same should be removed immediately. Frequently iron, steel and small slivers of glass may remain in the iris indefinitely without causing trouble. Of course, it is best to endeavor to remove such substance immediately through the wound of entrance, endeavoring to pick same up with small iris forceps, or if steel or iron, by the magnet. If firmly lodged and impossible to remove, iridectomy should be performed. I have found it best to leave alone all particles of powder imbedded in the iris.

Injuries of the ciliary region are the most dangerous of any met with, being prone to set up sympathetic ophthalmia. The iris and lens are almost invariably injured at the same time. Where a foreign body becomes imbedded in the ciliary body and carries no infection with it, its removal should be attempted immediately and a useful eye may be obtained, though at times a slow iridocyclitis may follow. The wound in the sclera should be covered by conjunctival flap; cleanse eye, atropia, bandage, rest in bed and mercurial purges are indicated.

Wounds of the sclera are either lacerated burns or bruises, it may be ruptured by a direct blow, the resulting tear is usually concentric with the cornea, about two or three M. M. from Limbus. They may be classified as those without and with foreign bodies in eyeball. Both are serious and grave by the damage which may have been done to the ciliary body, choroid and retina, and the possibility of infection having gained entrance. The loss of vitreous, accompanied either with or without the protrusion of the lens, causes the outlook to be dark. However, many an eye in which a portion of the vitreous has been lost, if properly attended to, may be capable of still being a useful organ. Large tears with considerable loss of vitrious, extensive damage to choroid and retina, either demand immediate enucleation or the modified Mules operation. If not so extensive, cleanse and bring the lips of the tear together with silk or catgut, and if no infection follows, useful vision may be had. In eyes damaged it is always best to wait a week or ten days unless conditions are quite bad before removing the eyeball. The eye should be cleansed daily, atropine instilled, a snug bandage kept on and absolute rest in bed. At times intra-ocular pressure may arise and secondary Glaucoma may ensue. Foreign bodies usually pass through the sclera, and I shall speak of the same later on under the subject of foreign bodies in the eyeball. If steel and iron are imbedded in the tissue itself the magnet will usually show the location.

Choroidal wounds usually accompany those of the sclera with a secondary attachment quite frequently of the retina. We may have a choroidal hemorrhage due to a blow or a perforating wound; the blood usually becomes absorbed in the course of a month or two, leaving a white atrophic spot. Rest in bed, atropine, dark room, sweats and purges are indicated. If near the Macula, vision will be damaged considerably. The pupil is frequently dilated, accompanied with paralysis of accommodation and vision greatly reduced.

The lens may be dislocated by a blow, torn

completely from all its attachments, the anterior or posterior capsul may be ruptured with no visible external injury. We frequently have penetrating wounds involving the lens, especially those due to a prick of a needle or a thorn. I recall one case where no other evidence of injury could be found than a minute prick in the cornea, passing through the pupil, involving the anterior capsul, leaving a small localized opacity of the lens which could only be noticed by ophthalmic examination. At times, however, lens may rapidly swell, intra-ocular tension quickly rise, demanding immediate extraction of lens. If a foreign body is imbedded in the lens the X-ray will frequently show same.

I have now one case at the hospital, a miner, who, due to a premature explosion, had both eyes badly damaged, necessitating the removal of the right some two or three months ago. While the left was badly damaged, I did not remove it. The other day I extracted a cataractus lens from it and I believe he will have useful vision, though the iris is badly torn, the cornea full of hazy spots and sclera all peppered with powder.

Injuries to the optic nerve usually occur where there has been some severe traumatism of the orbit involving the optic foramen. It may also be due to a stab wound severing the nerve. Ball reports two cases due to pistol shots. Injuries to the orbit are frequently found after close examination in what appears to have been only a "black-eye,' and on closer inspection the orbital walls are often found fractured. Where the fracture communicates with the air spaces, we will have an emphysematous condition of tissue. Hot fomentation and pressure bandage are indicated. If the supra and infra orbital nerves are injured, anaesthesia of parts will follow, which may remain for some time.

The subject of a foreign body in the eyeball would involve quite a lengthy discussion, and in a paper of this character I am afraid it would consume too much time. However, I do not feel that I would have done justice to the subject without a few remarks. We should positively determine whether there is the presence of a foreign body, the nature of same, the character of its entrance, and whether any infection is carried with it. The X-ray, as employed by Dr. Sweet, of Philadelphia, is a great aid in the localization of the foreign body in the eyeball. It consists in taking usually of two or more negatives in different positions, and gives one a pretty accurate idea where the body is located. All foreign bodies ought to be removed if possible; if steel or iron, the electric magnet will be of great assistance in the removal of same.

I would add that all patients, regardless of their station in life, where an eye is so badly damaged, so much that we despair absolutely of any useful organ, I believe it to be the duty of the attending surgeon to allow a few days or a week's grace, carefully observing the offending eye daily before the enucleation of same, as there always is the possibility of some useful vision being obtained.

In summary, wherever eyes are injured, the character of same should be carefully noted, parts made as clean and aseptic as possible. If penetrating wound, determine whether any foreign body remains in the eye; if not, lips of wound should be closed. Where cornea or deeper structures are involved, atropine is usually indicated; dionen will usually give ease, eye snugly bandaged, and it is advisable to consult with some man devoting himself to this special field.

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SURGICAL INTERVENTION IN TREATMENT OF NEURASTHENIC STATES*

BY C. M. ROSSER, M.D., DALLAS, TEX.

Taking literally the teaching of writers upon that type of neuroses, represented by neurasthenia, surgery would seem to be exempt from responsibility, both as to cause and cure, since surgery perhaps is the more direct of modern science with which the profession is concerned, and that disorder is described as the most indefinite of the diseases of the catalogue. Writers have contented themselves to say, what might be more tersely put, as follows: 'Neurasthenia is a deflection from normal physiological action, insiduous in approach, vague in exhibition of indefinite course, obscure if not wanting in pathology, but of increasing prevalence, the treatment of which is ultimately rest." They give unstable heredity as the predisposing factor, and excessive exertion as the exciting cause. This description would, in itself, render such cases at once unpromising and unattractive, but if essentially burdensome, they are intrinsically worthy, coming, as they do, for the most part, from the world's unceasing workers, gathered from the several walks of life, and many, indeed, are martyrs to the people's good through public progress. As a class, they pass from the physician to the neurologist, the neurologist to the retreat or asylum, while others seek the surgeon, willing that he should find glory or they the grave. But the accepted theory which thus charges parentage and improvidence, while correct to a degree, is yet incomplete, leaving out of consideration many influences which, if otherwise exerted, would obtain different results. Certainly no force is so persistently faithful as inherent integrity, but the law of compensation familiarly observed throughout nature's behavior, is, when appealed to, always comforting. It must not be forgotten that stagnation, induced by idleness, may influence as harmfully as the overstrain attendant upon excessive effort, the true philosophy requiring the maintainance of a parity between the processes of waste and repair, the work of our physiological clearing house. Those agencies or conditions, then, which disturb injuriously this necessary equilibrium, whether by antecedent weakness, acquired habit or intercurrent disease are to be classed as causes, and those methods which circumvent, counterbalance or remove them, should be included in all rational systems looking to relief.

There is, therefore, something for the Sociologist besides flaying and forefathers, and for the physician than to advise idleness and recommend rest.

Ideal ideas would be competent more often if plans could be made practical, but the locally tired cannot always travel, the weary may not always suspend his labors any more than the already-here may return to be born again of more acceptable parentage and to more sustaining environments. Among the sterner realities of life there is sickness and suffering, and surgery is a practical art. It regards conditions as concrete facts and applies itself to them as such. The relation, then, that surgery bears to neurasthenia depends upon the ability of the one to do in some definite way its duty toward a class of cases in which physical disorders are engendering or adding embarrassment to the vital forces, thus lessening resistance, increasing tissue waste, one or both, and usually both.

The bank balance is reduced, both by failure of deposit and by checks drawn upon it, and this illustrates the double method of organic depletion to which references has been made. The two economic forces, which operate for the preservation of physiological ratio, are relaxation as fully realized in sleep and nutrition,

*Read before the St. Louis Meeting of the Southern Surgical and Gynecological Association.

the normal way of reproducing or replacing its losses, due to necessary elimination and natural decay. Interference with those bodily functions, in any degree, tends then toward exhaustion and must invariably precede its entire production. Individual resistance, aid offered, and the agencies utilized, will determine the progress and the outcome of any contest against impending collapse, and in no instance should the sufferer be rashly regarded as a congenital defect, who has either been pre-ordained to defeat thereby, or whose lack of wisdom has led him to a point where nothing short of an abandonment of his ambitions may restore to tolerable existence.

The ruth is, neurasthenia is both a phycosis and a physical disorder, and these conditions are so interdependent that it is impossible to separate them. To illustrate: Disappointment leads to despondency, despondency to ill-digestion, these to insomnia, and the sufferer is fortunate, if after awhile, his physical distresses growing out of mental disturbance, can be still classed as functional. Pain induces discomfort and disability, both of which interferes with glandular activity, retards healthful metabolism, and if long continued effects, in a more or less definite way, all bodily conditions. And so it must be that diseases which offend by disfigurement, discourage by disability, embarrass through systemic inoculation, or by actual inroads obstruct the discharge of such functions as result in health, are all liable as creators and conspirators.

For these reasons surgery is positively concerned and may be associated with both the productions and progress of neurasthenia, as we shall now see.

DEFORMITIES. Simple as may seem an extensive burn upon an exposed surface it may, by occurrence, in sensitive persons, incline to a morbid mentality. Surgery, by skin grafting, holds the key as the only relief. STRABISMUS, CLUB-FOOT, and other congenital deflections are subject only to surgical correction, and should be prompted, if alone, for mental effects. GOITRE, now successfully removed by surgical methods, is both a mental menace and a physical forerunner of conditions too well known to need citation.

STOMACH DILATATION, due to pyloric spasm or obstruction, and inanition from UNCURED ULCER, is accompanied by both distress and actual decline in vitality, and surgery alone may remove those causes. *Disorder of the bile passages*, which interfere by reflex methods and with the production and distribution of that secretion, have recognized followings, which are fruitful of such results as surgical intervention may alone avoid.

Stones or other infective agents in the renal system are, by the employment of X-ray and clinical examination, easily discovered and freely removable, and when remain produce pain and otherwise disturb those organs, which have no separate counterpart. *Movable kidney*, if autodiscovered and particularly if erratic, centers a self-examination inconsistent with nerve equilibrium, and should be surgically corrected. *Chronically inflamed appendices* by reflex disturbances invite indigestion and they are better out.

Pelvic inflammations, due either to infections or traumatisms, lead to engorgement and to a train of symptomatic distresses which, on account of the delicate adjustment of the nervous mechanism in that locality, will usually induce depression as an incident and disease if unduly prolonged. The same may be mentioned in regard to *rectal ailments*, all excepting the malignant types of which are quite susceptible to surgical relief.

This review only indicates the few prominent conditions which are pertinent at this time, and a knowledge of their habits of chronicity, and some of them toward fatality in the not far future, suggests that for all reasons they be given surgical attention before the serious conseqeunces shall have convened. We have heard much of preventive medicine and the applause to which it is entitled should, for the reason set forth, be extended to include preventive surgery.

Greater difficulty arises in instances where

a neurosis is already established, and the surgeon finds, upon investigation, that the patient's complaints are altogether out of proportion to the indications presenting. The question also frequently comes whether there is, indeed, any surgical condition associated, and this will be perhaps as often negative than otherwise. In such an event the responsibility does not have surgical meaning, and the only thing that is left is a discharge of that obligation, which all men owe, to substitute suggestive help for actual, when the latter would be inappropriate or impossible. There are cases, however, in distressing numbers, which have progressed to a point of positive pathological derangement, due to the several associated activities which, if earlier handled, might have been surely helped, but which, having become established in an invalidism, will not likely entirely respond even if the causes, in so far as possible, shall have been removed.

If there are functional disorders, the disturbance may be too long permitted, and then we must remember always that facts are not altered at all by our lack of information concerning them.

The problem presented will be, how to insure against a surgical result that will not by failure to appreciably improve the studied symptoms further distress, discourage, and tend to destroy, and at the same time preserve a good conscience toward the afflicted, which we would, if possible, benefit, and toward the science which we must never discredit. It will be borne in mind that when adventitious embarrassment are implanted upon prenatal degeneracies, the same good results are not to be expected.

The rule, I think, should be to make that same careful clinical investigation of each case which would be encumbent, if complaints were not exaggerated, and then to operate upon the diseased condition found, if such are demonstrated, thus giving the patient always the benefit of any reasonable doubt.

"MEDICAL ETHICS AND COMMERCIALISM"*

BY CHARLES M. EMMONS, M.D., LL.M., WASHINGTON, D. C.

"The spirit of ethics is twin-sister to Religion; the spirit of commercialism is cousin-german to the devil."

The subject I have chosen for this paper, "Medical Ethics and Commercialism," was suggested to me by an advertisement appearing in the daily papers of this city several days since, offering employment, upon a salary, to a regular practicing physician, who was to devote part of his time to attending five hundred employees. This led me to make some investigation into the subject as to whether commercialism had invaded the domain of the ethics of the medical profession in this city, and, if so, to what extent; and the result of my hasty and limited inquiries has been grievous and astounding, evidencing such a departure from what I have been taught and believed were the established ethics and rules governing our profession and our association.

I have no intention to enter upon a philosophical discussion of ethics, medical or otherwise; being among the younger members of this association, I would not presume so much. I only intend giving a straight-out, matter-of-fact talk upon a subject that in my opinion, and that of others to whom I have spoken, is of vital interest and importance to the profession at large and our association in particular.

MEDICAL ETHICS.

My conception of medical ethics, condensed into a single sentence, is a code of professional conduct, based upon the best wisdom, experience and principles of the ages—transmitted like the common law providing for co-operation of its votaries in the devotion of their powers and lives to the best good of humanity, and inculcating love and helpfulness to our fellows in the highest degree, uprightness and morality, unswerving honor, and absolute fidelity to trust and confidence.

MEDICAL ASSOCIATIONS.

Our associations, according to my understanding, are formed with the view to furthering the best works on ethical lines, the advancement of our profession, fraternal intercourse and the exchange of experience and information, mutual helpfulness and improvement, and, incidentally, the protection of its membership and the public from the abuses of charlatanism and malpractice.

RULES AND REGULATIONS.

Our laws, rules and regulations are formulated upon the best reasoning, for the guidance of the membership in their professional practice and in their relationship and conduct towards each other; constituting a written agreement freely entered into, which each member pledges himself, on honor, to maintain, and to which he promises to conform.

I regret, in returning to my subject, that what I have to say may appear to reflect somewhat upon fellow members of our association, and I wish to here preface my remarks with the sincere assurance that I recognize the vexatious fact that I am not above the least of my brethren in my own failures to measure up to the high ideals and requirements of our standard of ethics and expressed rules; although in my admiration for and loyalty to their beneficent tenets, I feel that I am not inferior to the greatest.

It is unnecessary for me to quote at any length from our regulations or system of ethics anything relating to advertising or soliciting professional practice, and the charging of fees. You are acquainted with all such provisions and can make your own applica-

*Read before the Washington Medical and Surgical Society, November 23, 1908.

tion to the facts I shall relate, to which I referred in opening. I will, however, make two or three brief quotations from our regulations which are specially in point.

Section 9, Article 12, of our Regulations, reads as follows: "No member of this association shall make a contract, expressed or implied, to attend an individual or family by the year, or on any terms other than those authorized by these regulations."

Gentlemen, are you aware that upwards of ten thousand persons in this city who are as able to pay for medical services as our average pay patient, are receiving medical attention and treatment from regular licensed physicians in general practice, whose average fee is about fifteen cents per call and prescription, received in guise of salaries under contract and employment agreements? And are you further aware that these physicians, so employed and in receipt of these salaries under contract, by means of these arrangements obtain entree into the families of these patients and thus introduce themselves professionally to some thirty thousand other prospective and probable patients.

Yes, some of you, if not all, have knowledge in a general way of these contracts and employments, but have never given any serious thought to the questions either as to whether they constitute a violation of our ethics and regulations ,and (what will be the inevitable consequence) whether they menace the consistency and stability of our association and our individual interests and well-being.

AN ENTERED WEDGE.

Gentlemen, we have here an entered wedge the spirit of commercialism, that unless promptly and decisively dealt with will split our association asunder, and cause us as individuals to regard our ethics and regulations as a dead letter and to enter into competition ("for professional business") on our own schemes and terms.

At the forefront of this offering is the employment of four members of this association as police and fire surgeons by the District Commissioners at the salary of $600 per year, $50 per month. paid to them, in part for their professional attendance and treatment without any fee charge of some twelve hundred policemen and firemen, who all receive better compensation the year round than the larger class of our pay patients.

And these policemen and firemen are thus unnecessarily pauperized by this free medical service. If their salaries are considered too small to enable them to pay for medical services of their own selection, then increase them. And why free medical service only? Why not also free tailor, butcher, barber, grocer, lawyer, undertaker, etc.? The following facts are of interest in this connection:

In our sister city of Baltimore I happen to know that with a population of 543,000, they have a police forec of 1,032; they have one chief surgeon at the salary of $1,500, and four assistant surgeons with the salary of $1,000 each, who perform the usual duties of examining applicants, etc., and also give surgical treatment when officers are injured in discharge of duty, but they don't attend them when sick at their homes.

Philadelphia, Pa., has a population of 1,500,000, and the police force numbers 3,201. There is one chief surgeon who is paid a salary of $2,500 for his whole time; he examines applicants, officers on sick leave, etc., but gives no free treatment, and the officers engage and pay their own physicians.

There are 35 precinct surgeons who attend prisoners at the stations, for which service they are paid $1.00 per visit during office hours, and $2.00 per visit after office hours.

In Boston, Mass., with a population of 610,000, there is a police force of only 1,308 and no police surgeon is employed. When a physician is needed, the nearest one is called in and paid the regular fee, and the officers pay for their medical attendance.

Jacksonville, Fla., with a population of 60,000, has 82 policemen and six police surgeons who treat injured officers for regular

fees, paid by the city, per bill rendered, but they do not attend officers when sick at home.

Columbus, Ohio, has a population of 185,000 and only 200 policemen. Two police surgeons are employed at a salary of $66.66 per month, who examine applicants and officers, but do not give free medical treatment. Officers pay their own selected physician.

St. Louis, Mo., with a population of 725,000, has 1,623 policeman and one police surgeon at a salary of 2,500. Officers pay their own physician.

San Francisco, Cal., population 400,000; police force, 766. One police surgeon with a salary of $1,500, who examines applicants and inspects officers on sick list; no free treatment. The patrolmen are paid $1,464 per year and employ and pay their own physician.

Louisville, Ky., population 205,000, and 380 policemen. Two police surgeons at salary of $75.00 per month. No free medical treatment for officers.

Atlanta, Ga., population 120,000, 195 policemen. No police surgeon; no free medical treatment.

Galveston, Tex., population 40,000, 55 policemen. No police surgeon; no free medical treatment.

Salt Lake City, population 90,000, 65 policemen. No police surgeon; no free medical treatment.

Trenton, N. J., population 100,000, police force 114. One police surgeon; does not give free medical treatment.

Wilmington, Del., population 85,000, 90 policemen. One police surgeon; does not give free medical treatment.

Without citing further examples, the foregoing is sufficient to show that other cities with less favorable conditions manage the police question more economically and yet without disparaging the system of ethics and regulations of the Medical Association. Washington, with a population of some 330,000, has 659 regular district policemen, and, in addition, nearly as many more employed by the general government as watchmen in the public buildings and grounds.

And we have four police surgeons who examine men for appointment and discharge, etc., and give free medical service to the entire district police force and fire department, all for the salary of $50.00 per month.

I cannot conceive how such a contract can be construed as conforming to our regulations and harmonizing with our system of ethics.

And right here I must voice a protest against the general practice of our District Commissioners with relation to our profession, in every instance it underrates the value of our services and the importance and dignity of our institution. The physicians to the poor are paid like the ash man (only less), namely, one dollar a day when actually on duty. The physician to the jail is paid $1,000 per annum, and must himself supply at his own cost the needed medicine for some 600 inmates. And so it goes along the entire list of medical employment, bringing us down to the level of the man in our streets who, with broom and shovel, pushes the honey carts.

It is not in a spirit of adverse criticism of our District Commissioners that I make the suggestion, that inasmuch as they expect our obedience to their numerous ordinances and mandates. They in turn should regard our rules and regulations not contrary to correcting medical ethics and the law of the land in adjusting matters affecting our substantial rights and the established usages of our profession.

If we are called to an impending death-bed, or to attend an approaching birth, we must regulate our speed to conform to the order of the Commissioners (unless perhaps we happen to be in an automobile belonging to an immune official). And so, in all other respects, we are required to observe the mandates of the Commissioners, and as good citizens we give strict obedience.

But we constitute as substantial, responsible, deserving and representative a body of

men as can be assembled together in this District, and our ethics, rules and regulations are, to say the least, as well founded, just and reasonable as District ordinances, and it should be the desire as well as the duty of the Commissioners to respect our laws and protect our interests in all questions of medical legislation and regulation.

Following the official lead comes corporations, associations and business firms with employees numbering from 500 to about 1,500, and aggregate about 10,000 beneficiaries, with physicians employed on similar terms as our police surgeons. The incidental charity of these arrangements would be commendable were it not for the animating and prevailing spirit of commercialism, both in the medical employer and servitor.

God knows that, as true men and physicians, we are in sympathy with all charitable movements. And were our own individual acts of charity and benevolence published as are contributions to charitable funds, the daily papers could scarcely contain them all, and were our acts of heroism rewarded with medals, as are those good swimmers who plunge in and save a drowning man, some of our millionaires need look for no other outlet for their troublesome incomes. But our acts of helpfulness at risks repeatedly of our health and lives, are unheralded, unnoticed and unsung. I speak from personal knowledge, observation and experience of my comparatively short practice of fifteen years. What innumerable heroic incidents could not my elders, those grown old in service, relate, of labor under weight of sleep and weariness in winter and summer's simmering sweat, amidst offensive surroundings and with danger of disease and death threatening in every breath.

In God's name let our government, and corporations, and societies, and business firms be charitable, but not by pauperizing the beneficiaries, and in a spirit of commercialism engage in the purchase of medical services as they would material commodities at wholesale rates, with trade discounts.

And the physician who takes part in this game, what of him? It is not the small salary, but the perquisites that attracts him. A page from my own experience will show how the scheme works out. Some time since the Board of Police Surgeons of this city were unable to transact business because of the resignation of one and the absence of another from the city, and I accepted a temporary appointment to supply the needed member of the board. I served some six or seven weeks, during which I performed the duties of two surgeons, and on my list of patients today are at least ten families whose patronage I secured through that connection in so short a time. Locally they belonged to other physicians (without salaries) engaged in regular practice. I would never have met them but for my free treatment of the head of the house.

So you see, gentlemen, that, commercially speaking, these appointments with insignificant salaries, in charitable guise, provide the means of advertising and soliciting professional practice at variance with our ethics and unfair to our brother practitioners, who devote their time and service to professional practice in a professional way.

Another feature of violation of our regulations is becoming daily more offensive, and that is, the reception and treatment of non-indigents at our dispensaries, where the certificates mentioned by Sections 1 and 2, of Article 13, of our regulations are not required by the physicians in attendance.

Thousands of patients, able to pay for medical service, are also drawn from the general field by this means, and the "family trade' is also cultivated.

Another significant incident and I am through. At the Government Printing Office has been established a regular hospital service, with salaried physicians, trained nurse, and one of the finest and best equipped operating rooms in the city. What is the necessity for this when Sibley Hospital is within two squares and Casualty Hospital about six squares?

Emergency attention for accidents while awaiting the hospital ambulance might well be provided. But why this great detail?

Let the other departments of the government follow suit, gentlemen, and where will be our field of practice?

Only a few days back I was invited to co-operate in the organization of a society having for its object the providing of medical services for its members and families at bargain rates; $10 or $12 per year per family, I believe, is the contemplated cost for medical service and medicine, and the physician is to have a "salary," perquisites and monopoly—likewise the druggist.

The only difference in principle between their scheme and the District Commissioners' police surgeon arrangement, and the private business firms medical contracts speaks in favor of the scheme, because it don't actually pauperize the members and patients.

If my brother practitioners, in the enjoyment of their salaries and perquisites, under their contract employments, are recognized as acting in accord with our ethics and laws, then I should be free to join and serve said organization and any other similar scheme.

Am I holier than my brethren? If this spirit of commercialism is permitted to flourish unchecked in our profession, we may well look forward to the opening of "Medical Departments" in our department stores, where regular licensed physicians and surgeons, members of our association, serving on salaries, will give consultations and prescriptions and perform surgical operations at cut rates, and wholesale prices for families, with occasional bargain day reductions; or perhaps including coupons to each patient for ribbons, canned beans, snuff, according to the value of the respective medical job.

And why not also expect the formation of firms and companies of regular medical practitioners, whose business it will be to attend professionally patrons of some nickel-in-the-slot contrivance.

To the commercially-spirited physician, willing to take advantage of the opportunities which can be opened up on these lines, there are untold bushels of nickles and dimes awaiting his pleasure and practice. For example, upon appropriate suggestion, arrangements could readily be made with enterprising dealers and advertisers by which, for instance, the manufacturer of a new "breakfast-food" could present the purchaser of one half-dozen of his preparation with a certificate entitling him to one treatment for hemorrhoids, and a brewer could include one examination of urine with each case of beer, and a cigar dealer one diagnosis for tobacco heart with every box of cigars, an accouchment accompany a piano, and so on with the sausage-maker, the pickle man, the fish dealer and others *ad infinitum*. The physician could, of course, be employed on a salary basis with perquisites. And this would be only a slight advance, in keeping with our strenuous and hustling era, beyond the conditions already inaugurated which I have pointed out.

And there is money in it, gentlemen—big money; on the same principle that a street car pays larger dividends than a carriage, a bar-room than a library. But if we are to leave the sacred precincts of ethics and enter the arena of commercilism, we shall indeed have to take a wide departure from long established, time-honored principles and practices, or we shall be left far behind in the race for graft, and shall have lowered our standard to no purpose.

We must, first of all, absolutely discontinue our present practice of endeavoring to restrict and curtail our field of work, and, if possible, close out our business, and instead bend all our enegries to enlarging the field and increasing our practice.

In the field of commercialism we do not find the manufacture asking for reduction of tariff, the brewer for prohibition, the merchant for fewer articles of demand, etc., nor do we find the preacher praying for fewer church members, the lawyer aiding in restricting litigation, the politician working for a

reduced constituency, or the schoolmaster for fewer scholars. Yet from time immemorial, day and night, unceasingly through the centuries, the medical profession has studied and toiled, and exerted every ability and energy, and sacrificed ease and health and life, to the end that plague, pestilence and disease might be eradicated from the earth.

If we enter a house today, to attend one patient afflicted with a contagious or infectious disease, our first concern is directed towards rendering all the other inmates immune—thus protecting them from becoming probable patients. When indications of an epidemic of small pox, typhoid fever or other contagious disease is discovered, the medical profession assists and co-operates with the health authorities in combating and stamping out—thus depriving its practitioners of a fortune in fees. Why should not we hold our hands and fill our pockets? Commercially speaking, our method is poor policy and pays no dividends, and should not only be discontinued but reversed.

Ethically speaking, it is a mere matter of course, to be pursued to the death. The spirit of ethics is twin-sister to religion, the spirit of commercialism is cousin-german to the devil. Gentlemen, it seems to me, from the conditions already initiated and progressing, that we must make our choice quickly and firmly, as to which of these spirits shall dominate our professional lives and the conduct of this association.

Of all the professions none other has shown greater heroism, has given better service to humanity, has maintained higher ideals, and required and paid more exacting observance of rules of morality and honor, and enjoyed more implicit confidence of mankind than the medical profession.

Let us, therefore, appreciating the honor and privilege of our profession, remain loyal to the traditions, the principles and the ethics of our high calling, even though in doing so we shall have to use the most drastic remedies to eliminate the insidious influences now attacking the probity of our noble institution.

EDITORIAL

TYPHOID CARRIERS.

The time is present for the development of typhoid fever and it seems from present reports that it is abundantly appearing in various parts of the United States, with unusual virulence in many sections. Do we seek the source of infection as thoroughly as we ought? Do we instruct the family or the attendants as faithfully, as tediously, as plainly as the dangers of the situation demand? Do we take the care with our own persons and our apparatus, especially thermometers, as rigorously as our knowledge of the facts demand?

The source of infection is usually supposed to be the milk or water or food. Often the suspicion is correct. Yet it should never escape us that there must be numberless typhoid carriers, individuals, who having had typhoid fever and recovered, have still somewhere, in the gall-bladder or in a bone lesion with a discharging sinus, a culture bed in which there mature, and from which there escape in the feces, or the pus, great numbers of bacilli, often of exceedingly great virulence. They may then contaminate water or food, by the carrier's contact with them, or by drainage into the water supply, or be brought into our reach by flies. The typhoid carrier is more dangerous than the patient who has typhoid fever. He is likewise dangerous to a greater number of individuals. He is always dangerous. Going from place to place, or serving one family and then another, the carrier may innocently infect great numbers of unsuspecting people. The presence of a sinus following typhoid ought to be presumable evidence that its is due to typhoid infection in pure or mixed culture, and the fact that pus discharges from the sinus, conforming to the old, description of "good, laudable pus" is no argument against typhoid germs being the cause. They may produce pus, unassociated with other micro-organisms, and the nature of pus cannot be determined without the microscope and the culture tube.

Many a cistern has been condemned, where a member of the family or a servant or a neighbor was the source of infection, and many a milkman has been discarded when the offender was much closer home. To be sure, these are to be investigated, but a guess, however often it may be necessary, is always inconclusive, and definite proof alone will serve as a useful means in prevention. A priori, it seems that if the profession could eliminate typhoid carriers, they would be well under way to greatly reduce or exterminate the disease.

W. A. B.

PELLAGRA.

This disease has existed unrecognized in some of the institutions of the insane in the South for twenty-five years. Since Dr. Babcock, of the South Carolina State Insane Asylum, first recognized the disease in 1907 many cases have been observed and reported. It is a dreadful disease and it should now receive the attention of the profession at large. Everyone should at once become familiar with the very characteristic symptoms. The diarrhoea, the redness of the skin of the backs of the hands, face and neck, and tops of feet, followed later by a depreciation of the mental faculties, constitute the prominent symptoms.

The diarrhoea usually precedes and accompanies the skin manifestation. The skin first becomes red with distinct lines of demarkation, and the redness may extend up to the wrists or further, even to the elbow, up to the ankles and even up to the knees. The cheeks and sides of the neck are usually red, and the eyes may become red and inflamed. Large blisters may develop on any of the affected parts and the parts may become wet,

weeping areas. The mucous membrane of the mouth becomes highly inflamed and the tongue ulcerated in advanced cases.

Another very characteristic feature is the time of occurrence and recurrence of the eruption of the skin which is early in the spring, when the sun begins to get hot; and the eruption lasts through the hot, bright summer months and recede and disappears as the cold weather approaches.

Another marked sign is the exaggerated patellar reflex which is nearly always found present.

The one question associated with the disease which has troubled the investigators more than all others is the cause of the disease, and the mode of transmission. Pellagra has been known since 1735, careful researches have been made, and the concensus of opinion today is that the disease or condition is produced by eating bad maize (our ordinary Indian corn), and the strongest evidence is brought forwar dto prove it. However all this may be—my observation of fifteen cases inclines me to the opinion that the disease will be found to be a micro-organism—protozoan or otherwise, and that it may be transmitted from one to another. In an orphans asylum in Nashville one case developed in 1906. There were four children of this family, the other three developed the disease later and twelve other children in the asylum coming from all sections of the South have developed the disease since 1906, two of them now being in the advanced stage. The provisions used in this orphanage are the best the market affords. The corn meal used by this institution is obtained from the same mill which furnishes meal to the Tennessee Insane Asylum in which there is no Pellagra, even among the colored inmates, fifty odd of whom are women. It appears that corn meal could not be the origin of these cases at the orphanage. And again, the provisions used now at the orphanage are as good in quality as they have ever been.

It does appear that in this orphanage the disease has spread from one case or from one family. Cases of conjugal pellagra have also developed.

The United States Government recognizes the condition in this country of such importance that it has detailed Dr. H. C. Lavinder for special service on the disease. Many cases have been recognized since he began his work two years ago.

When we consider the 100,000 inhabitants in Italy affected with pellagra, it behooves this country now to be very watchful, and a thorough research should be instituted with reference to the disease itself and also with reference to the methods of harvesting, curing and shipping Western corn. J. M. K.

PELLAGRA.

The recent publications in the newspapers of Nashville that a group of cases of pellagra in a single orphan home, all of which have come up since the admission of two pupils, and the knowledge that there have been several hundred cases have appeared in the South in recent years should stimulate all physicians who have opportunity, to investigate cases coming under their supervision. The cause is not known, at least writers do not agree as to causation. It is said too that no adequate treatment has been discovered. So a new field for work arises with the appearance of pellagra, and its problems must be solved; they should be solved by the men who see them most. By accurate observations and records, in writing—all of us forget unless we record—sufficient data will accummulate to aid in the solution of a pestilence the harm of which must not be at present estimable.

The cases referred to above were reported in a paper by Dr. J. M. King, published in the Journal in November, 1908.

W. A. B.

ABSTRACTS OF CURRENT LITERATURE

MEDICINE.

CHILDREN OF TUBERCULOSIS PARENTS.

J. A. Miller and I. O. Woodruff, New York (*Journal A. M. A.*, March 27), report the results of a study of 150 children whose parents were under treatment at the Bellevue Hospital Tuberculosis Clinic. The children lived, for the most part, under unsanitary conditions and in close association with their parents, who were mostly in the advanced stage of tuberculosis. Their ages varied from 2 to 15 years, averaging about 8 1-2 years. The authors found that 51 per cent of the 150 children showed unmistakable signs and symptoms of tuberculosis or had suspicious symptoms and reacted to tuberculin; 20 per cent were doubtful cases, showing suspicious symptoms, malnutrition, etc., but had not undergone the tuberculin tests, or were apparently healthy but reacted to tuberculin; while 29 per cent were healthy. Th authors' conclusions are summed up as follows: "(1) In the children of tuberculosis parents, who live in close association with such parents, a large proportion (in our series 51 per cent) become affected with tuberculosis. (2) The earliest manifestations of such tuberculosis are not found in the superficial glands or in the bones and joints, but in the lungs. (3) The physical signs of these early pulmonary lesions in children under ten years of age are very rarely those usually found in adults, but consist more often in the presence of persistent fine rales just without the midclavicular line in the fifth and sixth intercostal spaces. In other cases, in which persistent fine rales are present in varying portions of the chest, the diagnosis is doubtful, but they should be regarded with suspicion. (4) The tuberculin tests furnish the most reliable means of diagnosis in children. Of these we regard the hypodermic test in doses up to 5 mg. as positively diagnostic. Of the local tests the cutaneous is more reliable in children than the ophthalmic and presents none of its possible dangers. Moreover, in our hands, it has been fully corroborated by the hypodermic test, and in consequence we regard it as a reliable and safe means of diagnosis of tuberculosis in children. (5) Examination of the sputum, as usually practiced, is of almost no aid in the diagnosis of early pulmonary tuberculosis in children. As a routine procedure it is not very feasible in dispensary practice. (6) Malnutrition is sometimes the only appreciable evidence of tuberculosis in children. (7) The presence of hypertrophied tonsils and adenoid growths in any child does not appear to incline the balance in a suspected case toward a positive diagnosis of tuberculosis. In view, however, of the varying opinions held on this subject, further investigation along the lines of the bacteriology and pathology of this subject should be made. (8) In our cases the evidence that enlargement of the cervical lymph nodes is of aid as a determining factor in arriving at a diagnosis of tuberculosis in children is not conclusive."

HUMAN AND BOVINE TUBERCULOSIS.

F. M. Pottenger, Monrovia, Cal. (*Journal A. M. A.*, March 27), reviews the points of difference and resemblance between human and bovine tuberculosis bacilli, stating the opinions of others and giving the results of his own observations. He believes that we were warranted in assuming that these bacilli are not only different, but antagonistic, though originally from the parent stem. He makes a comparison between cowpox and smallpox, and believes that the same immunity can be conferred, though with greater danger, by children taking in bovine bacilli in small numbers. His experience has taught him, if he interprets his observations correctly, that few patients do equally well on treatment with both forms of bacilli; some are improved by one and irritated by the other. Pottenger considers it fairly established that human and bovine

bacilli are different and that cattle can be immunized against bovine bacilli by inoculation with moderate numbers of human bacilli Their resistance, however, can be overcome by overwhelming or prolonged infection. Human beings are sometimes infected with bovine bacilli. Reasoning from all the facts, he concludes that the toxins of the two forms are different, but, judging from the reaction of the infection from the two types, it appears that both are able to produce tuberculosis in the human body, but that the localization of the two infections is more or less constant. It has been found that infections of the lungs, larynx and intestines are best treated by tuberculins as a rule made from bovine bacilli. These infections are most probably of human origin. Infections of the bones, glands (as a rule), peritoneum (with effusion), ear and genito-urinary tracts as a rule are best treated by tuberculins made from human bacilli. These infections are probably produced by bacilli of bovine origin. Reasoning from the analogy, the fact that human bacilli will immunize cattle against infection with bovine bacilli would suggest that bovine bacilli might immunize human beings against human bacilli; and if our belief that tuberculosis of the bones is of bovine origin is true, and our observation that persons suffering from bone lesions rarely suffer from tuberculosis of the lungs is correct, we have clinical evidence which supports the fact that immunity in human beings against human bacilli may be produced by infection with bacilli of the bovine type.

THE OPSONIC INDEX.

E. F. McCampbell, Columbus, Ohio, (*Journal A. M. A.*, March 27), publishes a description of a method devised by himself which makes the determination of the opsonic index available to the general practitioner with limited laboratory facilities. He incubates a culture of the bacterium to be opsonized at 37 degrees C. for from 18 to 24 hours, then washes it off with a small amount of sterile 0.85 per cent. sodium chloride and 0.8 per cent sodium citrate solution. The bacterial emulsion is drawn up to the mark 0.5, and then on up into the bulb of the leucocyte blood-counting pipette of a hemocytometer. The blood of a patient whose opsonic index is to be determined is then drawn up to the mark 0.5, then on up into the bulb, where it is thoroughly mixed with the bacterial emulsion. The sodium citrate in the bacterial emulsion precipitates the calcium salts and prevents the coagulation of the blood which would occur without greater dilution with salt solution. When the materials have been mixed the solutions are blown into the capilary portion of the pipette and a strong rubber band placed over the ends lengthwise, thus practically sealing it. The pipette is now ready for incubation, which may be accomplished in a regular incubator at 37 C., or, if no incubator is available, the pipette may be incubated in the operator's axilla. The pipette must be frequently rotated. After incubation for fifteen minutes or any desired period the material is blown out on a slide, the smear made and stained with carbothionin blue or some other equally good blood stain. McCampbell says that experimental work suggests that the sodium citrate causes a slight reduction in the amount of phagocytosis, probably due to some slight effect on the opsonins. but he does not know whether this effect will be noted with all species of bacteria. By this method the index can be determined as quickly as an ordinary blood count can be made. Further results with it will be noted later.

TUBERCLE BACILLI IN MILK.

The results of a study of the incidence and type of tubercle bacilli in New York City milk and the health of the consumers are published by A. F. Hess, New York, in the *Journal A. M. A.*, March 27. The samples were taken from the large forty-quart cans which constitute a large proportion of the municipal supply and are often the same as the bottled milk. In 107 samples, or 16 per cent were found by inoculation tests on guinea pigs, to be tu-

berculosis, tubercle bacilli being found in the guinea pig on autopsy. Tubercle bacilli were not discovered by direct microscopic examination, but only by animal inoculation; cream as well as sediment, was found infective. Tubercle bacilli were also detected in a sample of "commercially pasteurized" milk, claimed to have been heated to 160 F. for 40 seconds, showing that this name is misleading and suggesting that only such milk be called "pasteurized" as has been heated for a length of time and to a degree sufficient to insure its being a safe food. In all but one instance the bacilli found were of the bovine type. In the exceptional case a human type was found, showing that human contamination of milk is possible and must be guarded against. A number of infants and young children who drank milk containing tubercle bacilli, when examined one year later, seemed in average health. A fourth of the number, however, reacted to tuberculin. One of them was in poor physical condition and had suffered from a recent glandular affection. Probably 90 per cent of human tuberculosis is due to infection from human beings, but we are not, therefore, justified in neglecting the danger from the bovine sources, as even a very small percentage from this cause means thousands of cases. As an immediate safeguard, Hess recommends pasteurizing or boiling all milk coming from tuberculin-tested cows. There should be a great many more inspectors of herds and finally all cows should be tested with tuberculin, and, if found reacting, should be condemned or isolated.

St. Louis Medical Review, January, 1909, by J. W. Marchildon, M.D., "The Sero-Diagnosis of Syphilis."

The author discusses in detail the technique of the Wassermann reaction, its practical results, and closes by summarizing as follows: The reaction is of value in all cases in which an ulcer has been present on the genitalia, the nature of which is not clear Within certain limits the negative reaction is valuable. If there is a tumor or an infection with symptoms, with a negative serum reaction, we can conclude that it is not syphilitic, that it is not a gumma. If there is an acute exanthem, a skin lesion of some kind and a negative serum reaction, we can say that it is certainly not due to syphilis.

In differential diagnosis of many cases, such as pseudoluctic rheumatism, syphilide about the nose, in pregnant women, with a suspicion of syphilis, it is important.

The reaction is of value in the selection of a wet nurse and of nurse girls, in order to tell if syphilis has been present. It is being used in Germany as a routine procedure in the examination of life insurance.

It is of value in the diagnosis of diseases of the nose and throat, of the eye, in cases belonging to internal medicine, and, in fact, whenever the question of syphilis comes up, even in consent to marry. WM. L.

Recent Studies in the Physiology and Pathology of the Parathyroid Glands. (The Old Dominion Journal of Medicine and Surgery. Vol. VIII, No. 4, April 1909, by Wm. N. Berkeley, A.B., M.D.)

The parathyroid glands in man average three or four in number, and are typically located, two on each side, in front of the vertebral column, just behind the rear margins of the lateral lobes of the thyroid gland. They are apt to be in close relation with the terminal twigs of the inferior thyroid artery.

The average size and shape of each gland is about that of a small grain of Indian corn. Its color is reddish yellow or reddish brown. It has a distinct capsule, over which a characteristic network of fine veins is distributed.

The consistence of the glands is softer than that of a lymph-node of the same size, and rather harder than that of an equal mass of fat. Two theories are at present deserving of serious attention. The first may be briefly described as the hypothesis that the parathyroid glands elaborate an antitoxic substance

which neutralized certain poisonous waste products of tisssue metabolism or an enzyme which facilitates the decomposition of such products.

The second hypothesis is that the parathyroid glands preside in some way over the calcium metabolism of the cells of the body, particularly of those of the nervous system, and that the excision of the glands causes a rapid disappearance of the soluble salts of calcium from the blood. There is a large mass of convincing evidence that tetany is analogous and owes its origin to disease of the parathyroid gland.

Particularly in dogs the symptoms after parathyroidectomy strikingly resemble tetany.

Paralysis agitans is possibly another disease which was advanced over four years ago as being in some way associated with the parathyroids.

In parathyroidectomized animals the symptoms include rigidity, trembling, salivation and forced movements, all of which are marked symptoms of paralysis agitans. These symptoms are sometimes associated with myxedema and exophthalmic goitre, which seems more in the phenomenon than coincidence. Autopsy findings on Parkinson's disease showed a definite degree of destructive sclerosis, whether enough to embarrass the function of the gland would be difficult to say.

The therapeutical application of parathyroid glands have involved unusual difficulties. They may be successfully administered in several different ways, either as fresh gland, preserved gland, or nucleproteid solution.

E. C. DeMoss, M.D.

MALNUTRITION IN SCHOOL CHILDREN.

The results of a study of the nutrition of school children in New York by E. M. Sill, of that city, are published in the *Journal A. M. A.*, June 19. The children were all from the laboring and tenement house classes, and mainly of foreign parentage. Each one, after a careful physical examination, was weighed, a full history obtained from the mother through a train nurse interpreter. Anything like syphilis, tuberculosis, or other diseases which would have a bearing on the question was carefully noted. Then the following questions were asked the mother: "What does the child have for breakfast, for dinner, for supper? How many rooms have you? How many in the family, including boarders? Do you keep your windows open at night to allow the circulation of fresh air, and air the house in the day time? When does the child go to bed? Does the child eat between meals—candy, etc.? How often does the child get a tub bath? Is the child in a grade with children of its own age at school?" From the answers to the questions it was found that 83 per cent of these children practically depended for their diet on tea or coffee and bread. In the 210 families examined the average number of rooms per family was 3, averaging 3,600 cubic feet, and the average number in the family was 6, allowing only 600 cubic feet of air space for each person. Sixty-two per cent kept their windows closed; 50 per cent of the children ate between meals and none went to bed before 8 o'clock and 76 per cent at 9 or after. They were all under ten years of age and should have been to bed at 7, but 12 per cent remained up till 11. About half had a bath as often as once in three weeks, 22 per cent had a bath once in three months, and 4 per cent had one once a year. They were all decidedly under normal weight. One thousand other children in the Jewish quarter were also examined and 40 per cent were found poorly nourished; 86 per cent had dental caries, and 90 per cent adenoids. Of the 210 patients examined in his own clinic, Sill found 75 per cent had enlarged cervical glands, and 55 per cent of those tested (101) with tuberculin gave a positive reaction. Practically all had other defects than those from malnutrition, to detail which would take too long a paper. It was noticed that many of the children were in a condition in which they had no desire for good nourishing food, and indeed could not retain it because their stom-

achs had become so accustomed to the bread and tea or coffee diet. The mother would say that the child could not take what she was told was best for it. Thus the two most prominent causes for the malnutrition are the insufficient and improper nourishment and the bad housing, and while poverty is an important factor in malnutrition of children, ignorance on the part of the parents is a still more important one. Education of the mothers is needed most; it gives the best results. Sill quotes other authors and statistics and calculates from these data that there are approximately 1,472,895 ill-nourished school children in the cities of the United States, and estimates that the so-called stupidity or backwardness of many children is simply the result of neglect and underfeeding. He points out the necessary results of such a condition and suggests a dietary which he has found to be most useful in such cases. A mixed diet is usually best taken, and it is surprising how rapidly these children improved and gained weight with no other medication than a simple iron tonic. A child, he says, is a valuable national asset, and it is a public duty to see that it is properly nourished and cared for.

AMEBIC DYSENTERY.

Granville S. Hanes, Lounsville, Ky. (*Journal A. M. A.*, June 19-, remarks that it was recently believed that amebic dysentery was purely a tropical disease or acquired only in those regions. A theory has been suggested that cases occurring in our climate are due to eating uncooked tropical fruits on which the ameba had been imported. There is no scientific evidence in the support of this theory and cases occur in which its possibility can be excluded. He and his partner, Dr. Mathews, have had half a dozen such cases under their care in the past few months, two of which are reported. In both of these the evidence was strongly in favor of impure drinking water as the cause. He thinks that amebas are indigenous in this country, but the less favorable environment than in the tropics renders them less in number and virulence, and the disease caused by them is consequently rarer and less severe. The diagnosis is always made with the microscope, and he does not rely on the examinations of the dejections alone, but inverts the patient and scrapes the ulcers with a sharp curette. In this way the amebas will be observed at once if they can be found at all. It may be difficult to find motile amebas while the patient is under actual treatment, and in such cases he discontinues the treatment for a few days and they appear again. Warming the stage is also an important measure in detecting them under the microscope. He is convinced that there are large numbers of people in this country suffering from unrecognized amebic dysentery, cancer or tuberculosis being the most usual diagnosis after the patient becomes emaciated. No one plan of treatment has been found universally successful and relapses are always to be anticipated as possible. When the interval, however, is a number of years, Hanes thinks we should consider reinfection as the possible cause. There is nothing that will prevent possible reinfection as long as the patient's environment is unchanged. Too restricted diet, he thinks, is a great mistake in these cases, but rest is an important features in the treatment of the disease. Of remedies given internally, ipecacuanha is the most to be relied on. It does not perhaps kill the ameba, but it destroys the pathogenic power. A large number of parasiticide injections have been employed, but none is universally effective. Quinine has been largely used, but it is sometimes an absolute failure. Hanes has employed coal oil, knowing its generally parasiticide effects. He at first employed it with great caution, but latterly has come to use it with boldness, and he now has no hesitancy in injecting a quart or more of undiluted coal oil through the rectum, or, in the cases of appendicostomy, through the appendix, the patient being then requested to keep the recumbent posture for half an hour or longer. He is not prepared

to make definite statements as to the influence of oil on the amebas, but expects to be able to do so in the future. All the patients in whom he has employed this treatment except two have responded beautifully. In the two cases mentioned he was not allowed to carry out the method in detail, and he has advised appendicostomy and will keep the patients under observation and report later on the results.

GASTRIC SYMPTOMS OF ARTERIOSCLEROSIS.

H. L. Akin, Omaha (*Journal A. M. A.*, June 5), discusses the frequency of this condition and gives the histories of some personal cases. He reviews the mechanism of the production of the symptoms as explained by Pal, Ortner and others, and states that in making a diagnosis it is of the utmost importance not to be led astray by the patient's complaints of indigestion, pain in the stomach, distention, and belching, and so neglect to make a careful physical examination. He emphasizes particularly the importance of examining the vascular system thoroughly. In treatment he advises a restricted diet, and states that in this, as in all other arteriosclerotic conditions the iodides are the most valuable drugs.

SURGERY.

CRANIAL SURGERY.

C. H. Frazier, Philadelphia (*Journal A. M. A.*, June 5), says that too much attention has hitherto been given to the mere operative technic. First taking up the subject of trigeminal surgery, he says that in no other operation on the central nervous system has a greater degree of perfection been reached or more satisfactory results been obtained. He rejects the less radical procedures as not ensuring against recurrence, and says that the element of danger does not justify at present the apprehension which still lingers in the minds of the profession. In his own series of twenty-three cases he has only lost one patient, the sixth, and he has had no fatalities since 1905. He mentions the principal points of the technic, and says that the final step is the one that has provoked the most discussion. He himself performed the first operation, designedly dealing only with the sensory root at Spiller's suggestion in 1907, and since then he has modified his technic only in exceptional cases. Division or avulsion of the sensory root insures as positively against the recurrenec of neuralgic attacks as does appendectomy against future appendicits. He speaks next of the changes in our ideas as regards cerebral concussion and contusion and of the blood pressure effects of cerebral trauma. He has found from repeated observations that papilledema, the pathogenesis of which is perplexing, is of little importance as a means of diagnosis or a guide to treatment. The third point to which he refers is the decompressive operation and its application in serous contusion of the brain. As so many cases recover, routine surgical intervention is unjustifiable, and he divides the cases into three groups, so far as the question of surgery is concerned: 1. Those in which damage to the brain is so great that they are necessarily fatal. 2. Those in which the symptoms at no time seem to threaten life, the patient may be unconscious for several days and then recover, perhaps with paralysis, which can be located and relieved. In this case, decompression operations are unnecessary. 3. Those in which, though at first apparently not desperate, the patient's condition becomes progressively more serious. These are the cases in which decompression operations should be considered as life-saving. It remains to be decided whether the operation should be done in the temporal or subtentorial regions. Theoretically, the latter would be best, as nearest the vital centers. It is needless to say that when undertaken the operation should be performed without an anesthetic and as rapidly as possible. A skilled anesthetizer is always necessary when an anesthetic is used, and there should also be an assistant to observe and record the blood pressure at frequent intervals. With these precautions we can be sure that the condition of the patient

is being carefully watched. For controlling hemorrhage Frazier has come to the conclusion that the old-fashioned Petit's tourniquet is most satisfactory. The technic of the osteoplastic flap is now nearly perfected. Speaking of operable and inoperable tumors, Frazier says that the operation has generally been postponed so long that there are few cases that are practically operable. An operable tumor must be accessible, that is, near the cortex and sufficiently well-defined to enable one to determine its limitations. The inoperable is a deep-seated or infiltrating growth. He lays down certain rules for the surgery of the posterior fossa. Condensed as far as possible they are as follows: 1. Generally speaking, exploratory and decompressive operations in the posterior fossa are more risky to the patien than those in any other part of the brain. A certain percentage of patients will die under the operation or later, or even when convalescence seems established. 2. If, after exploration, attempt is made to remove the tumor, the risks are increased, so much so that if the tumor is malignant or adherent, he consideres the attempt unjustifiable. There may be instances, of course, of encapsulated types of fibrosarcoma, or, of course, in the benign fibroma of the auditory nerve, when removal is feasible and may be curative. 3. The great majority of tumors are situated in the pontile angle. He has seen but one situated elsewhere. While skeptical as to the operability of tumors in this region, he is optimistic as regards decompressive operations. 5. Lumbar puncture, either for diagnosis or as a therapeutic measure, should never be resorted to. The number of fatalities from this procedure are enough to make it absolutely prohibited. He gives some details as regards the technic of subtentorial operations at some length. In the great majority of cases palliation is all that the surgeon can offer, but palliation in case of brain tumor means a great deal more than it usually implies when the term is used; it means restoration or preservation of vision and relief from headache and vomiting, three symptoms which make the patient's life unendurable. The operation has a wide application and should not be reserved for tumors only. In his experience he has found that in the majority of cases exploratory operations have been made before decompression, and generally speaking he wishes to enter a plea against resorting to decompression before searching for the tumor. It is needless, he says, to emphasize the importance of early operation when localization is difficult or impossible. Such delay may result in loss of vision. While the propriety of resorting to decompression in advanced cases, when the patient is already in a stupor, may be questioned, as a rule the effects of decompression are so beneficial that its propriety should not be doubted if there is reasonable hope of the patient surviving the ordeal. There are exceptions, however, to this rule. The term decompression implies not simple trephining, but the removal of a considerable portion of bone on one or both sides of the cranium; together with the removal of the dura or the making of a crural incision therein. The expectancy of life, if only for a year, be added by the operation, is of little value, but more may be expected. The use of decompression in other conditions than tumor has already been referred to, and Frazier, in concluding, mentions his expereince with the operation for epilepsy and says that while it is not time to speak of results he has always found that in the so-called idiopathic type without a suggestion of a focal lesion, there was, in a large percentage of cases some gross pathologic condition.

BOOKS

BOOKS RECEIVED.

Myomata of the Uterus. By Howard A. Kelly, M.D., Professor of Gynecologic Surgery at Johns Hopkins University; and Thomas S. Cullen, M.B., Associate in Gynecology at Johns Hopkins University. Large octavo of 700 pages, with 388 superb original illustrations by August Horn and Hermann Becker. Philadelphia and London. W. B. Saunders Company, 1909. Cloth, $7.50 net; half morocco, $9.00 net.

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M.D., Professor of Diseases of Children, New York Polyclinic Medical Sccool and Hospital, etc. Second revised edition. Octavo of 629 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $5.00 net; half morocco, $6.50 net.

Bier's Hyperemic Treatment in Surgery, Medicine and all the Specialties: A Manual of Its Practical Application. By Willy Meyer, M.D., Professor of Surgery at the New York Post-Graduate Medical School and Hospital; and Professor Dr. Victor Schmieden, Assistant to Professor Bier at Berlin University, Germany. Second Revised Edition. Octavo of 280 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $3.00 net.

The American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, M.D., editor "The American Illustrated Medical Dictionary." Sixth revised edition. 32mo of 598 pages. Philadelphia and London: W. B. Saunders Company, 1909. Flexible morocco, gold edges, $1.00 net; thumb indexed, $1.25 net.

Diet in Health and Disease. By Julius Friedenwald, M.D., Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons Baltimore. Third revised edition. Octavo of 764 pages. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, $4.00; half morocco, $5.50 net.

REVIEWED.

Jordan's General Bacteriology is a text-book that the medical student, the bacteriologist and practitioner alike should receive with open arms. It is written in a clear, crisp and concise manner, remarkably up-to-date, and, considering the first edition, is comparatively free from obscure passages and typographical errors. The biographic references are selected after a definite plan, in which it cites the reader to subjects under actual investigation and to valuable summaries. The index is quite full, and especially commendable is the name index, so very often absent in American text-books. The work is not intended to exhaustively discuss all the phases of bacteriology and should not be so considered. It simply treats of the fundamental principles with emphasis on general rather than on special questions.

Reference should be made in the next edition to Rivas' method of differentiating the bacillus coli communis from allied species.

Dengue fever, a very important malady in many of our Southern States, is not even mentioned in the text.

An omission of the very common disease, viz: chicken pox (varicella) is also noted in the appendix on "Infectious Diseases of Unknown Causation."

Aside from the above criticisms, I heartily commend the work in every respect. The volume is well illustrated. WM. L.

Disorders of the Bladder, With Technique of Cystoscopy. By Follen Cabot, M.D. Published by E. B. Treat & Co., New York.

It is to be regretted that Professor Cabot has not given us a more exhaustive work upon these very important diseases, as well as upon cystoscopy. Diseases of the bladder have not, until very recently, received the attention from medical writers to which they were entitled, and it was only through advances made by the cystoscope that they could be properly classified and their pathology correctly appreciated. The work is a timely one and should be read by all. It is not intended for the specialist solely, but for the general practitioner, who though not expected to be proficient in cystoscopy, is nevertheless required to know the fundamentals of this important and valuable means of diagnosis.

Chapter one is especially valuable to the

general practitioner, for it teaches the fundamentals in the examination and recording of data in diseases of this organ. The little book is full of practical matter, and with the exception of a few typographical errors, is well printed. We hope to see a larger and more exhaustive treatise from the pen of Professor Cabot at some later date. P. B.

Marriage and Disease. By Professor H. Senator and D. S. Kaminer, Berlin. Translated from the German by J. Dulberg. Published by Paul B. Hoeber, New York.

This purposes to be but a condensed edition of a large manual on "Health and Disease in Relation to Marriage and the Married State," by the same authors, which met with such marked approval by the medical profession, that the need for a condensed work which would be of the utmost interest to the general public, was urged upon the writers. That they have not worked in vain is to be seen upon every page, which literally teems with a mine of information of especial value to the public as well as to the doctor of medicine.

The book is a compilation by several authors and is so well and so clearly written that criticism is well nigh impossible, though one reared in the South, and familiar with the negro, could not agree with all which has been said by Dr. Havelburg in his chapter on "Climate, Race and Nationality in Relation to Marriage." In a foot note, page 92, he says: "It should be mentioned here that colored races drink very little, and that they secrete much less urine than Europeans, who endeavor to compensate by copious drinking the great loss of water they suffer through profuse sweating." With this I am compelled to disagree, for surely Dr. Havelburg is not familiar with the Southern negro. That the drinking of large quantities of cold water "predisposes one to catch cold easily," page 93, is a dogmatic statement which surely lacks authority.

The chapter on "Consanguinity in Marriage," by Professor Kraus, is a masterly presentation of this subject, and one cannot help but admire the impartial manner in which it is discussed and agree with his conclusions. There are many chapters of excellence and great worth to the profession and the public, but none should be more widely known than that of Professor Neisser, of Breslau, on "Gonorrheal Diseases in Relation to Marriage." This chapter is especially full of practical facts which should be common knowledge and teems with suggestions, which, if followed and obeyed, would materially reduce the suffering of many innocent ones. I cannot commend the book too highly, for it is rich with the rare fruit of knowledge.

P. B.

Electro-Therapy

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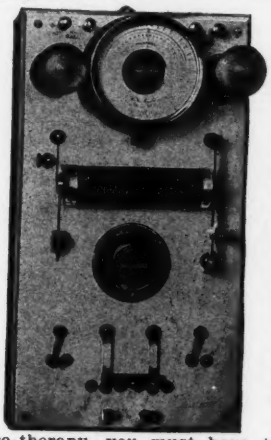

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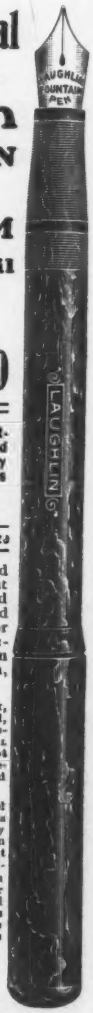

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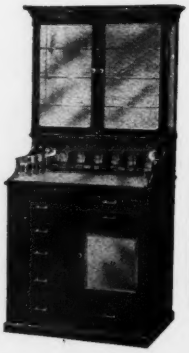

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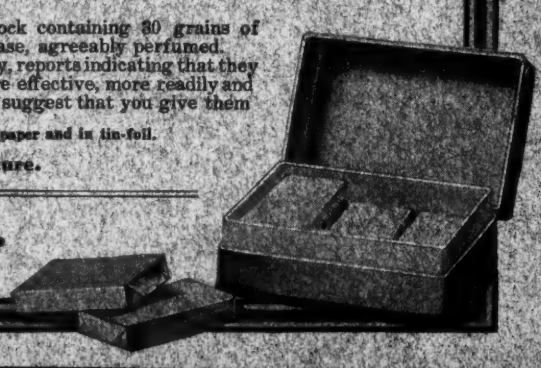

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